SEPTEMBER
1951

fueloil & oil heat

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YOU CAN *Quickly* SLIP OUT THE MEASURING UNIT

—with BRODIE BiRotor METERS

Complete interchangeability of Brodie BiRotor Measuring Units permits quick, easy removal for inspection and periodic cleaning or replacement. . . .

—without disturbing existing line connections

—and without needless tie-up of equipment or facilities.

Other features include: Welded all steel meter housing • precision dry adjustment • smooth shockless operation • maximum capacity • high sustained accuracy.

Investigate Brodie BiRotor Meters, today. Write for full details.

BRODIE ALL-STEEL BiRotor TRUE-ROTARY METERS

RALPH N. BRODIE CO., INC. • 61st & LOWELL STREETS, OAKLAND 8, CALIFORNIA, U.S.A.

Division Offices: 550 SO. COLUMBUS AVE., MT. VERNON, N.Y. • 59 E. VAN BUREN, CHICAGO 5, ILL. • 302 SO. PEARL STREET, DALLAS, TEXAS
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SEPTEMBER fueloil & oilheat 1951

VOLUME 10 NUMBER 9

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ENTERED AS SECOND CLASS MATTER AT THE POST OFFICE AT BALTIMORE, MD.

LEOD D. BECKER, *Chairman, Board of Directors*

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Among other things . . .

A New Jersey dealer goes to some lengths to convince his customers how important they are . . . VIP's . . . and Bert Dunphy spent a day learning about it. Some tables of operating cost figures for fueloil trucks are in the page 56 story which tells more about the Cross Coal operation at Lawrence.

Out in the Dakotas there is a sheet metal shop that goes to the jobs within a hundred mile radius—it's on the road with the workmen living and working out of it. Then there was a reader who doubted if the flexible reserve theory for degree-day systems would work in his company, and sent an excellent description of his company's efforts to get the same results another way.

Gib Morgan is the fabulous legendary character of the early oil industry, something like Paul Bunyan of the Northwest; he tells how he sold his dry holes. The three commercial-industrial features this month are outstanding.

. . . what the score is

On the field, you can tell the situation just by looking at the numbers. Same way on a fuel tank.

The purpose of a fuel gauge is to tell people how much oil they have and how much oil they use. Home owners want to *know* these facts—not *guess*. They want to know them quickly, accurately . . . in terms they're used to dealing with.

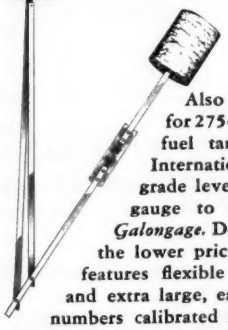
Whether it's for the finest installation or a 55-gallon drum, we have a fuel oil gauge to do the job *better*. Here's a *team* designed to give you customer satisfaction and top performance with economy and efficiency. Write for complete details.

FIL-THRU
For 55-Gallon Oil Drums

Gauge, vent and fill-pipe all in one. Installed without tools of any sort. With FIL-THRU user knows at a glance when to order and fill man can tell how much is required. Rugged, rainproof and non-corrosive. Clean and convenient for consumer and oil man.

GALONGAGE The only gauge generally used that measures in gallons. Designed to meet the most exacting requirements and do credit to the finest installation. Comes fully assembled to save installation charges. Calibrated for each standard size 275-250 and 220-gallon tank with depths of 44", 42", 27" and 26", with 1½" or 2" tank openings.

INTERNATIONAL

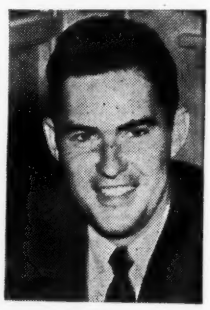


Also calibrated for 275-gallon size fuel tanks is the International, a high grade lever arm type gauge to team with *Galongage*. Designed for the lower priced field, it features flexible float arm and extra large, easy-to-read numbers calibrated in eighths. Built oil-tight at the factory for immediate and easy installation.

APPLIED MECHANICS COMPANY
167 OLIVER STREET, BOSTON 10, MASSACHUSETTS

Names in the News

William A. Matheson, Jr. has become sales promotion manager, International Heater Co., Utica, N. Y. After graduating from Lehigh University he became associated with Williams Oil-O-Matic Division, left for military service and returned after the War. Late in 1949 Mr. Matheson joined Perfex Corp. and served as manager of Chicago District control sales, manager of new products and manager of the Government contract division.

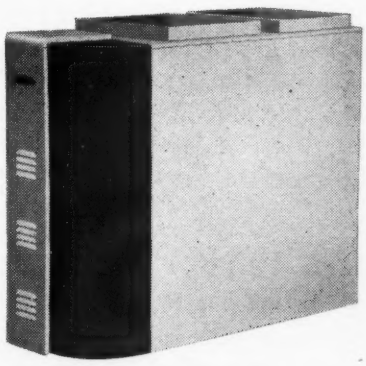


C. J. Caharack has been appointed advertising manager, Thatcher Furnace Co., Garwood, N. J. Before joining Thatcher he was with the Advertising and Public Relations Div., Underwood Corp., New York City.

Raymond P. Babcock has been appointed factory representative for Harvey-Whipple, Inc., Springfield, Mass. Mr. Babcock, who has enjoyed a broad experience in the field since the early days of the oilburner industry, will represent the company on both its gas and oil-fired line of Master Kraft equipment. He makes his home in Greenwich, Conn. and will travel a territory including the metropolitan New York area, Long Island and New Jersey.

F. E. Bero, Chicago district manager for the Fluid Heat Div., Anchor Post Products, Inc., Baltimore 24, Md., has recovered completely from injuries

"Service is no problem with FLUID HEAT Equipment!"



FLUID HEAT Furnaces for any size home

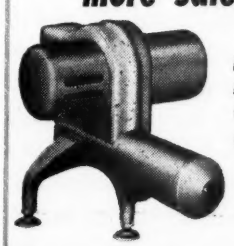
Model R-85 Winter Air Conditioning Furnace (illustrated above) is especially designed for the small home with a basement. Unit delivers 85,000 B.T.U. per hour. Attractively finished in maroon and beige. Incorporating the latest developments in C.A.C. (continuous air circulation), this Fluid Heat Unit provides steady, comfortable heating in addition to efficient air filtration. Many other models, both vertical and horizontal types, for small, medium-sized and large homes, ranging from 70,000 to 200,000 B.T.U. per hour.

"When I put in a heating unit, I want it to give long, dependable service . . . because that means I've got a satisfied customer . . . and I'm not bothered with unprofitable 'nuisance' calls.

"That's one of the reasons I value my Fluid Heat Franchise. Not only is every unit in the complete Fluid Heat Line easy to install, but they all give long, efficient, trouble-free service. That's due to the many features of Fluid Heat Burners . . . such as the exclusive constant-velocity discharge air regulator and the stainless steel nosepiece which develops and reflects less temperature to nozzle body, thereby reducing nozzle coking.

"When you sign up as a Fluid Heat Franchised dealer, you're backed by a manufacturer who's been designing and building oil heating equipment for 29 years! You get full cooperation from trained field representatives in merchandising and selling. And every unit is backed to the hilt to assure you complete customer satisfaction!"

Big, complete line gives you more sales advantages



Famous Fluid Heat Pressure Burners. Four models with firing rates from 7/10 to 12 gallons per hour.

Famous Fluid Heat Wall Flame Rotary Burners. Two models with firing rates from ½ to 4½ gallons per hour.

Famous Fluid Heat Boiler Burner Units. Six models rated from 300 to 1090 sq. ft. of standing steam.

A complete line of Oil fired Heating Equipment

Mail Coupon NOW for details!

fluid heat
HEATING EQUIPMENT

Manufactured by ANCHOR POST PRODUCTS, INC.
Baltimore 24, Maryland. Established 1892

"WORLD'S ECONOMY CHAMPION"

Fluid Heat Division, ANCHOR POST PRODUCTS, Inc.
6700 Eastern Avenue, Baltimore 24, Maryland.

Gentlemen: Please rush me full details on Fluid Heat's Dealer Franchise Plan.

Name.....Firm.....

Address.....

City.....Zone.....State.....

sustained in an automobile accident three months ago. He is back on the job again, contacting dealers and distributors in the Midwest territory.

Norman W. Rowand has become general manager of the Pittsburgh plant of the Meter and Valve Div., Rockwell Mfg. Co., Pittsburgh 8, Pa. Formerly chief industrial engineer for Pittsburgh-DuBois Div. and plant manager of the Regulator Div., in the Rockwell organization, Mr. Rowand previously had been affiliated with the J. R. Wald Co. as general superintendent and the Screwwercs Co. as plant manager.

A. B. MacLaren has become sales manager of the Superfex Furnace Div., Perfection Stove Co., Cleveland 4, Ohio; *E. B. Goodwin* is new accounts manager of the Division and *E. W. Conners* has assumed the post of furnace service manager. Mr. MacLaren came to Perfection in 1930 in a sales and service capacity, advanced to layout engineer and sales and service cor-

MacLaren Goodwin Conners

respondent in 1935. During the War he was in charge of the company's Production Engineering Office and handled contract terminations, later was named service manager and in 1948 assistant sales manager of the Furnace Div. Mr. Goodwin joined Perfection in 1934 and Mr. Conners, with the company since 1947, has been a member of the Furnace Division for the past three years.

R. D. Kizer, manager of Shell Oil Company's Baltimore marketing division, on September 1 became division manager in Atlanta, Ga., succeeding *J. L. Wadlow,* promoted to the position of general sales manager on the West Coast, with headquarters in San Francisco. At the same time, *C. W. McDowell,* sales manager in Albany, N. Y., was named second sales manager in the Atlanta division marketing area, with *J. M. Parks,* sales manager there since 1941, remaining in his present position. The large area covered by the Atlanta division and an increasing volume of business necessitated Mr. McDowell's assignment.

E. C. Marsh, president of the Fort Wayne Division of Bowser, Inc. has resigned, effective August 31, and *J. P. Orchard,* executive vice-president, has been named to succeed him. Mr. Marsh leaves the company after 42½ years of service and will continue as a member of the board of directors. Mr. Orchard joined Bowser in 1940 as controller, became treasurer and later executive vice-president, Fort Wayne Div. Prior to his association with Bowser he has been a management consultant in manufacturing and distributing enterprises in the industrial field.

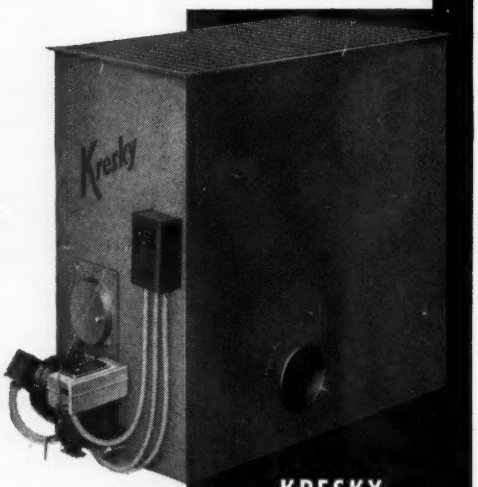
James E. Dyer has become a vice-president, Sinclair Oil Corp. He has been with the Sinclair organization since 1916 and also is a vice-president and director of Sinclair Refining Co.

Kresky OIL HEATING

ONE OUT OF EVERY FOUR OIL FLOOR FURNACES SOLD IS A KRESKY!

OIL FLOOR FURNACE

Ask to see the live demonstration which shows the famous Kresky burner in action . . . the best furnace selling tool in today's market.



Leads the way to a NEW heating market and helps offset your sheet metal shortage

You are already established in the market for central heating . . . a market you may be facing trouble to supply because of the steel shortage.

NOW IS JUST THE TIME TO BREAK INTO A NEW MARKET WITH AN ITEM THAT DOESN'T NEED ANY SHEET METAL.

There are millions of small homes which cannot afford central heating. The Kresky Oil Floor Furnace meets their need perfectly. Simple to install, it gives them big-home heating with automatic thermostat control at moderate cost.

And it's a natural for you. It requires no ducts, no other sheet metal work. It's a complete package ready for delivery to a big market, which can soon mean volume enough to make it a highly profitable phase of your business . . . and go a long way toward offsetting your sheet metal shortage.

KRESKY EVENHEAT MODEL

The most popular Oil Floor Furnace in America—one of seven models to choose from.

Pioneering Leadership Since 1910

FLOOR & WALL FURNACES • BASEMENT & UTILITY FURNACES
SPACE HEATERS • STORAGE & AUXILIARY WATER HEATERS

MAIL THIS COUPON TODAY

KRESKY MFG. CO., INC. 951-FOH
2nd & H Streets, Petaluma, California
Send me complete facts and figures on Kresky Oil Floor Furnaces. Also the name of the nearest Kresky distributor.

Name_____
Company_____
Address_____
City_____ State_____

Kresky OIL HEATING

Limited number of territories open for qualified distributors.

More than a Quarter Century

Reputation for Reliability

"Model TUX"* FUEL PUMPS

for Heavy Duty Fuel Lifting

Twenty-five years of service life is not unusual for reliable Teesdale Automatic Wall Type Fuel Pumps. They are the "old reliable" for heavy duty service.

Complete and self-contained, these pumps have a motor driven rotary pump submerged in a sturdy 16-gauge steel reservoir. Automatic controls turn it on when fuel is needed—off when supply is sufficient. It lifts fuel oil from the storage tank and delivers it by gravity in exact accordance with burner needs. Requires no attention after installation.

Model TUX has a nominal capacity of 30 gph —delivers 3 pints per pumping cycle. Model R has a nominal 75 gph capacity, delivers 2 gallons per cycle. Capacities based on fuel oil of 38-40 Baume.

Standard motor is 110V, 60 cycle AC: special motors for other voltages and frequencies, and for direct current available as extras.

Easily installed—one simple electrical connection.

Better wholesalers everywhere handle these Autopulse-made Teesdale pumps.

For lighter service, use Autopulse Fuel Lifter.

**Formerly The Teesdale Pump*

AUTOPULSE *Corporation*

LUDINGTON, MICHIGAN

Editorial Leaks

A PUBLICITY RELEASE from the George E. Thompson Co., Minneapolis, explains with pictures that lightning rods are now being installed on the White House. It's no use . . . lightning doesn't strike a person twice.

❖

SOMETIME IN SEPTEMBER the "Oil Daily—The National Newspaper of Petroleum" will first see the light of day. Kieth J. Fanchier, late of *Chicago Journal of Commerce,* is to be the editor. Milburn Petty of "Petty's Oil Letter," Washington, the only other person with a financial stake in the venture, will handle the National Government phase of the publication.

There is in hand enough advertising space reservation to promise early financial success for the venture. The character of the editorial talent also promises real usefulness to the readers. God speed!

❖

WHEN THE GAS limitation order was signed at the middle of August there was apprehension in the Housing agencies at Washington that oilheating could not take up the slack, with the result that many new home developments would bog down.

The proponents of this view argued that oilburners use so much copper and other critical materials that obviously they can't fail to be very scarce.

The fact is that with both dealer and factory stocks sky high and sales through the spring and early summer months disappointing, we have enough oilburners to handle quite a few more customers. What we most want is more orders . . . we'll take care of finding the equipment, and with little pain.

In spite of our competitive feelings in the matter, we are sorry that the gas limitation order went through. It was finally watered down to where any utility that really has the gas can get permission to take on more heating load, so the gas industry is not badly hurt. But we worry about the precedent it sets on end-use controls.

The Petroleum Administration is not to blame on this point. Bruce Brown, head of the agency, was primarily a gas man before he came to Washington. The impetus for this restriction order came from the Munitions Board and from some large gas utilities that had already oversold their supply. They needed a skirt to hide behind; they got it.

FHA is reported to have some new figures on a spot check it made of heating in new homes recently built. Sampling builder developments across the country that embrace a total of 30,000 homes they found 60% heated with gas, 31% with oil, 1% each with coal and electricity and 7% had no heating.

The gas restriction order may cut the 60% to 50% for gas with oil picking up the difference . . . obviously builders would be afraid to put in coal. The chances are that the oilheating industry will not be greatly affected, one way or another.

❖

AN OIL TRUCK belonging to Frontier Oil Co., Buffalo, rescued itself from a blaze near the garage where it was stored, according to the newspapers of August 9. Four gasoline storage tanks were afire back of the garage. First the horn started blowing and then the truck slowly passed out through the garage door, with no one aboard. Apparently the heat built up a pressure inside the metal garage, enough pressure to force the vehicle forward. A gremlin tooted the horn.

❖

EAST COAST terminal operators have a very serious price problem. These are independent companies who buy their fueloil in tankers, operate storage terminals at tidewater points and sell their products to fueloil distributors, usually at the same price the distributor would pay to a major company. There are about two dozen of these operators strung out between Washington and Portland, Maine.

Through the years most of them have bought their oil from major refiners at a price delivered to their terminals. Now real trouble is developing due to tanker rates not being controlled by the Government.

Under Maritime Commission base rates it costs about a cent a gallon to move fueloil from the Gulf to Eastern terminal points. Last winter when tankers were extra scarce, the hauling rate reached a peak of 200% over Maritime. Unless some control can be exercised, it will happen again next winter.

The major suppliers to these terminal operators are willing to take some of the licking, but not all of it. In most instances they have told them that they will give them on a delivered cost basis the same amount of oil they bought last season, but no more.

That means that the independent terminal man must buy his additional fueloil in the Gulf markets and pay for transportation whatever the tanker owners feel the traffic will bear. Since these terminal men normally operate on a gross spread of around a third of a cent a gallon, they can't stand much monkey business.

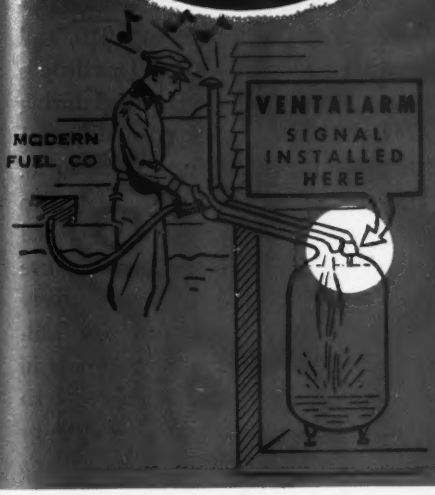
Unless there is to be some control on tankers, some possible subsidy to these buyers, or a fueloil price rise in the East before November, a lot of good fueloil is just not coming to market. The amount of No. 2 oil affected by this plight is estimated at around 24 million barrels or 18% of total requirements, according to a presentation by Harry B. Hilts of the Atlantic Coast Oil Conference to Washington price officials. H. B. VanCleve, president of Maritime Petroleum, New York, headed a committee making a factual study of the problem.

Some solution will be found; the public will not be denied its requirements, but finding the solution is going to be about as tough as the recent pulling and hauling in Iran or Korea.

However it is finally worked out, the chances are that retail heating oil prices will rise a little, probably .4¢ or .5¢ in the Atlantic seaboard markets. That is not enough of a rise to seriously hurt oilburner sales.

SCULLY FUEL OIL DELIVERY AIDS

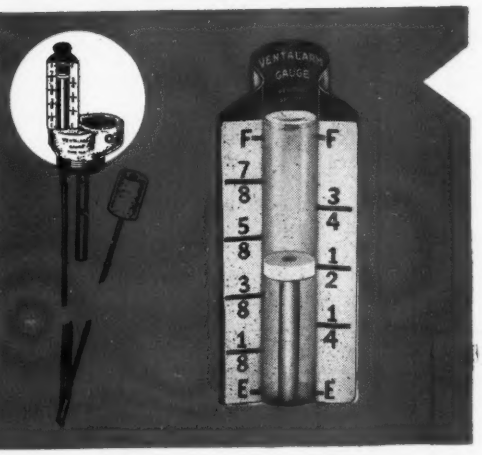
for conservation of fuel, time, equipment and man-power



VENTALARM®

WHISTLING TANK FILL SIGNAL

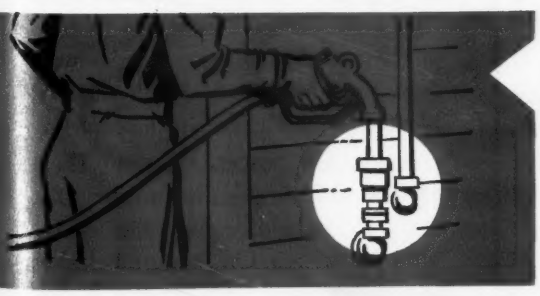
For installation on new and old fuel oil tanks. Driver just fills 'til the whistle stops. Prevents spills. Eliminates need to enter home. Simplifies degree-day work. Saves five minutes per drop. Decreases delivery costs by 15% to 30%. Models for all vent pipe sizes on both new and old tanks.



VENTALARM® GAUGE

All the benefits of the whistling tank fill signal combined with a tank gauge of super visibility. Read easily even 10 ft. away. Saves installation time and cost. No reducing bushing needed. "Snap-by" float arm adjustable for permanent operation in either direction. You install <u>one</u> item instead of <u>three</u>.

Available for 275 gal. cellar tanks with depths of 24", 26", 27", 42", 44" and 47". Specify tank depth and tank opening when ordering.



FASFILL® CONNECTOR

Portable, hand-tight connection for gun and fill pipes of all sizes. Allows top-speed fills without a drip or blowback. Easy hand turn puts it in place. No tools involved. No buildups necessary. Diaphragm head holds nozzle.

All Scully products are protected by U.S. and Foreign Patents or Patents Pending.

See your regular Supply House or write for information to . . .

SCULLY SIGNAL COMPANY

76 First Street, Cambridge 41, Mass.

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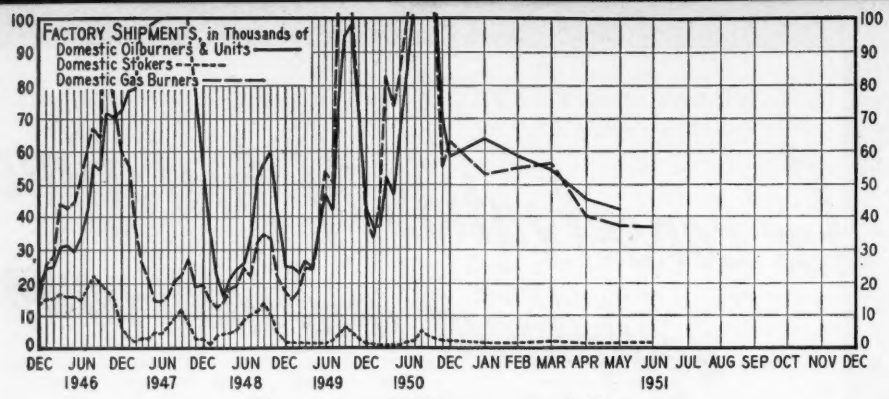
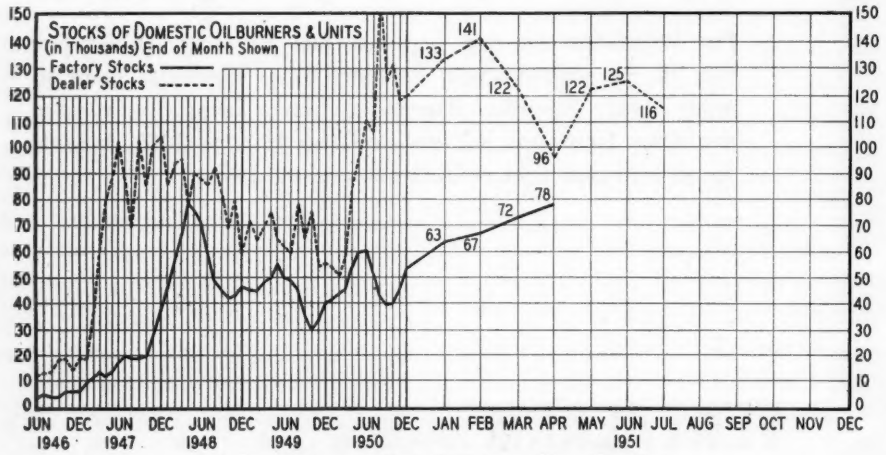

FACTORY SHIPMENTS, in Thousands of
Domestic Oilburners & Units
Domestic Stokers
Domestic Gas Burners
DEC JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1946 1947 1948 1949 1950 1951

Shipments of Oilburners and Units

(Including Exports)

Adjusted to include manufacturers other than the 151 reporting to Census Bureau, FUELOIL & OIL HEAT's estimates of shipments are:

	MAY			FIVE MONTHS		
	1951	*1950*	*Percent Change*	*1951*	*1950*	*Percent Change*
Conversion	30,313	47,824	— 36.6	186,028	174,697	+ 6.4
Boiler Units	2,867	7,677	— 62.6	25,255	23,142	+ 9.1
Furnace Units	8,043	9,676	— 16.8	53,666	39,636	+ 35.4
All Domestic	41,223	65,177	— 36.7	264,949	237,475	+ 11.5
Commercial	3,087	2,193	+ 40.7	18,302	10,576	+ 73.0
Total	44,310	67,370	— 34.2	283,251	248,051	+ 14.2



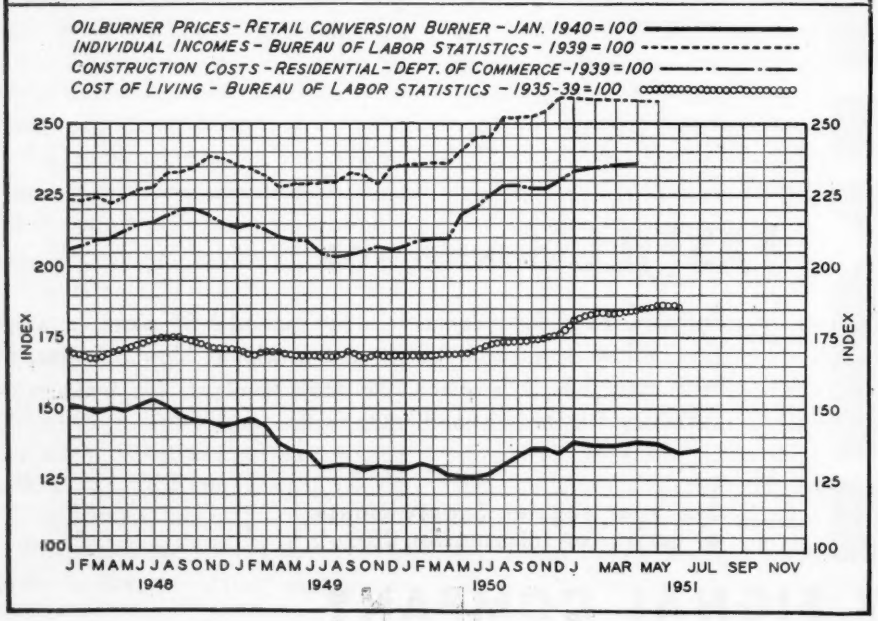
July Minimum Retail Prices: Key Dealers

	CONVERSION BURNERS	BOILER-BURNERS	FURNACE-BURNERS
July Aver.	$332	$689	$632
June Aver.	333	688	625

Price Index: Conversion Burners: January 1940 is 100%

	WHOLESALE				RETAIL		
July	138.0	Six months ago	136.5	July	136.1	Six months ago	137.9
June	137.6	Year ago	125.0	June	135.9	Year ago	127.2

OILBURNER PRICES COMPARED TO GENERAL INDEXES


OILBURNER PRICES - RETAIL CONVERSION BURNER - JAN. 1940 = 100
INDIVIDUAL INCOMES - BUREAU OF LABOR STATISTICS - 1939 = 100
CONSTRUCTION COSTS - RESIDENTIAL - DEPT. OF COMMERCE - 1939 = 100
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MAR MAY JUL SEP NOV
1948 1949 1950 1951

Oilheating Trends

JULY INSTALLATIONS of domestic oilburners and units are estimated at 48,183, continuing the down trend of the previous four months. In July a year ago the installations were 82,726, so the drop has been about 42%.

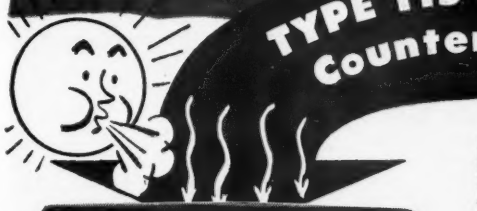
In the first seven months of this year the installations have been approximately 279,189, compared with 354,504 in the same period of 1950, and showing a decline of 21%. This drop is in line with what was expected during 1951 but there is some possibility that the present level may not be sustained. You remember that the first two months of this year showed substantial gains over 1950 and the succeeding five months have shown progressively greater declines each month. The dealers generally expect good business in the final five months of the year so perhaps we can hold within a 20% or 25% dip which would give us a year's total between 700-750,000. The July installations were divided: New homes 10,328; Replacements of old oilburners 5,646; Conversions from other fuels 32,209.

BURNER STOCKS: On August 1 dealers had stocks of domestic oilburners and units of approximately 115,864. This compares with 125,339 the previous month and 105,716 on August 1 last year. Factory stocks on May 31, the latest available data were 91,895, compared with 59,551 in 1950.

TANK STOCKS: On August 1 dealers had in inventory approximately 160,220 consumer fueloil tanks. This compares with 164,233 the previous month and 76,337 on the same date last year. The average price for a 275 gallon tank during July was $42, the same as in the two previous months. By sections of the country the average price was: New England $42; Mid-Atlantic $45; Midwest $38; Pacific Northwest $41.

DEFERRED INSTALLATIONS: There has been a feeling in the industry that dealers were holding a lot of orders for fall installations. On August 1 dealers had orders for 22,160 jobs that they could not install until September or October. This factor has not been checked in previous years so there is no way of determining whether or not

4 NEW Mueller Climatrol convertible high boys



TYPE 115 and 215 Counter-flow

With outstanding design features for new low-cost housing

- **Compact space-saving** — only 24½" wide, 29½" deep. (Types 115, 215 — 69½" high, Types 114, 214 — 66½").
- **110,000 Btu capacity** — Types 114 and 115, AGA approved for operation with natural, mixed, manufactured and Propane Gas, and for high altitude, without derating on city gases. They are available with dual gas controls. Burners for types 214 and 215 set to deliver .80 gph.
- **Designed convertibility** — available for either gas or oil, quickly and easily converted by switching burners.
- **Priced right** — and Mueller's quality construction makes each a big-value buy.
- **All-welded heat exchanger** — heavy gauge steel. Square wrap-around radiator. Designed to eliminate expansion and contraction noises. Easily cleaned.
- **Quiet blower** — large, 13" size. Motor cushioned on rubber. Adjustable sheave with V-belt drive. Factory assembled.
- **Handsome steel casing** — sound-absorbing, heat-reflecting asbestos liner is laminated with aluminum foil.
- **Efficient up-draft design** — long flue travel.
- **Easy servicing** — completely cleanable from front through removable access panels.
- **Low-cost installation** — both units shipped assembled.

TYPE 114 and 214 Verti-flow type

Convertible design . . . compact, quality construction . . . Easily installed

Compact — quality-built. These new gas- and oil-fired Mueller Climatrols are designed and priced right for your low-cost housing business. For perimeter heating, slab or crawl-space homes — the new oil or gas counterflow types 115 and 215 are the perfect answer! For basement, closet, and utility room installations — the new Verti-flow types 114 and 214 can't be beat. Easy to sell? You bet! Just check their outstanding features. Easy to install too — they're shipped assembled. Send your stock orders in today — and get under way . . . *L. J. Mueller Furnace Company, 2050K W. Oklahoma Avenue, Milwaukee 15, Wisconsin.*

94th Anniversary

Mueller Climatrol

D-122

FOR GAS FOR OIL FOR COAL

this situation is abnormal. Asked how much the down payment had to do with installing these installations the dealers say that about 2 out of 5 jobs in the deferred lot were held back for that reason. Under regulation W the dealers can no longer offer summer purchase plans without down payments.

PUSHING SALES: With dealer inventories higher than usual and the peak selling season just ahead, 61% of the reporting dealers will concentrate on a selling drive during the next 60 days. Some 73% of those reporting say they will spend more money on advertising and sales promotion for burners than they did last year. There is considerable pressure to reduce inventories during the peak season, most of it being applied by local bankers.

INSTALLATION MEN: Considering the fact that the three months August through September normally account for more burner installations than the previous seven months it is obvious that this year there will be some trouble getting enough men. Just under three-fourths of the reporting dealers say that they have all of the men they expect to need, while a little more than a fourth of them will have real trouble getting their jobs put in. On the other hand, only 10% of the dealers are holding back on burner sales because they won't have men to install them.

Another interesting figure came to light in these manpower questions. A little more than two-thirds of all oilburner service men are switched over to installation work during this peak period. That gives the industry a lot of flexibility to get its jobs put in but it does cut down the amount of preventive maintenance service that burners could use to advantage.

SUMMER FILL UPS: On August 1 approximately 59% of all consumer fuel-oil tanks had been given a delivery since the end of the heating season. This is the same figure that we had last year on the same date. It is not the best that could be done, however. The highest point reached on August 1 in any recent year was 66% in 1948 following the shortage scare of the previous winter.

Asked if dealers put forth any special sales pressure to get tanks filled this summer, 40% of those reporting say that they did and the other 60% did not. Actually, not too much can be done on consumer fill-ups because nearly three-fourths of all tanks are served by automatic deliveries and a fueloil distributor is not going to chase around making tiny drops when he knows his operating costs skyrocket under such conditions.

FUELOIL STOCKS: On August 1 fuel-oil distributors had their bulk tanks filled to 69% of capacity in the area East of the Rockies. This compares

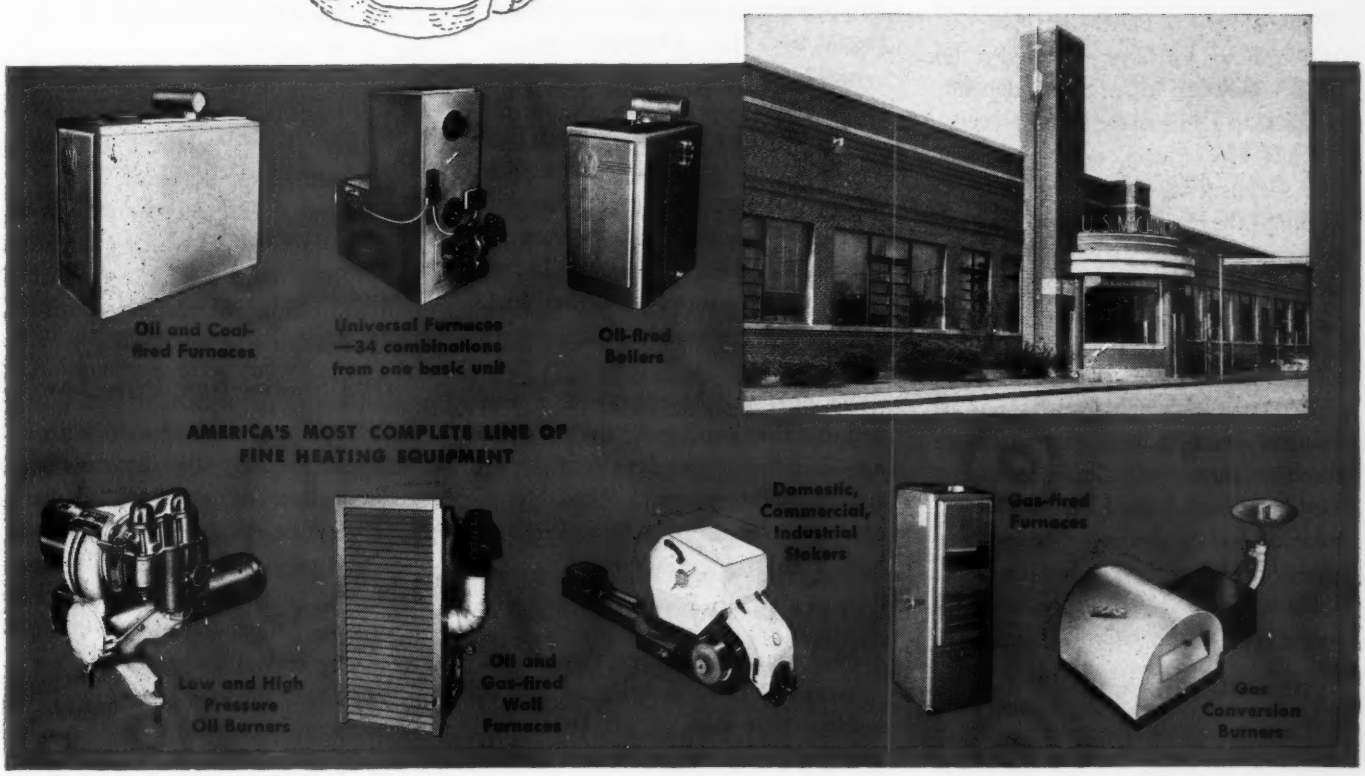
(*Please turn to page* 164)

Oilburner* and Building Permits

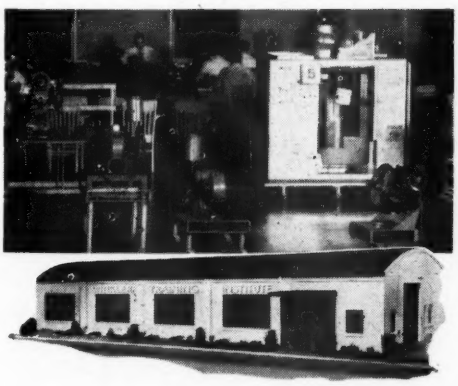
OILBURNERS					DWELLINGS			
July		7 MONTHS			*July*		7 MONTHS	
1951	1950	1951	1950		1951	1950	1951	1950
69	139	407	491	Albany, N. Y.	..	..	..	..
288	599	1765	2884	Baltimore, Md.	536	363	3205	3536
..	..	..	..	Binghamton, N. Y.	6	17	56	85
..	..	..	..	Bloomfield, N. J.	30	49	83	121
..	..	..	..	Boston, Mass.	23	31	169	196
90	82	532	517	Bridgeport, Conn.	..	..	..	..
..	..	..	..	Buffalo, N. Y.	52	40	341	436
..	2	..	12	Columbus, O.	..	..	..	..
..	..	..	..	Des Moines, Ia.	72	215	540	1077
..	103	..	630	Detroit, Mich.	275	983	4296	8907
82	60	323	351	Elizabeth, N. J.	2	5	33	39
22	54	245	282	Freeport, N. Y.	..	..	..	..
..	..	..	..	Greenwich, Conn.	27	48	261	236
..	..	..	..	Hackensack, N. J.	9	8	67	103
..	205	..	993	Hartford, Conn.	..	..	..	..
..	..	..	..	Hudson County, N. J.	..	..	..	..
39	78	237	343	Irvington, N. J.	7	8	31	37
..	..	..	..	Lynn, Mass.	19	21	79	111
7	12	184	399	Meriden, Conn.	..	..	..	..
71	307	491	1629	Milwaukee, Wisc.	297	431	1723	2176
..	63	..	428	Minneapolis, Minn.	128	264	866	1331
32	51	150	185	Montclair, N. J.	..	..	..	..
..	..	..	..	Morristown, N. J.	0	4	7	23
27	52	160	278	Mt. Vernon, N. Y.	..	..	..	..
191	297	996	1273	Newark, N. J.	..	..	..	..
56	101	381	631	New Bedford, Mass.	..	..	..	..
47	72	302	297	New Haven, Conn.	..	..	..	..
..	..	..	..	New Orleans, La.	..	..	..	..
..	24	..	176	New Rochelle, N. Y.	13	13	88	116
2359	3531	14689	17512	New York City (total)	..	..	..	..
1783	2873	11166	13753	Brooklyn-Queens	..	..	..	..
576	658	3523	3759	Manhattan, Bronx, Rchd	..	..	..	..
122	243	1041	717	Norfolk, Va.	172	83	611	793
..	..	..	..	Oakland, Calif.	..	..	..	..
93	132	413	424	Omaha, Neb.	92	185	629	1004
21	43	127	150	Orange, N. J.	0	1	33	13
19	32	128	215	Passaic, N. J.	..	..	..	..
54	93	354	590	Paterson, N. J.	11	29	125	143
821	1588	4435	6106	Philadelphia, Pa.	..	..	..	..
..	..	..	..	Plainfield, N. J.	9	75	101	161
43	49	332	274	Portland, Me.	10	30	107	121
393	849	2342	2988	Portland, Ore.	102	338	983	1573
26	17	111	91	Poughkeepsie, N. Y.	..	..	..	..
92	53	476	324	Providence, R. I.	..	48	..	208
..	..	..	..	Reading, Pa.	1	4	56	56
31	87	456	566	Richmond, Va.	35	90	420	501
57	99	313	733	Roanoke, Va.	..	..	..	..
217	389	1264	1800	Rochester, N. Y.	..	..	..	..
18	59	143	205	Rockville Center, N. Y.	1	19	59	109
15	26	162	199	Salem, Mass.	7	7	49	60
..	13	..	227	St. Louis, Mo.	40	117	357	671
49	142	378	726	St. Paul, Minn.	107	211	669	1071
..	45	..	417	Schenectady, N. Y.	..	..	..	..
..	..	..	..	Seattle, Wash.	109	234	1211	1674
..	..	..	..	Springfield, Mass.	52	100	448	486
27	74	360	586	Stamford, Conn.	..	..	..	..
4	10	..	89	Syracuse, N. Y.	41	60	187	418
..	..	..	..	Trenton, N. J.	..	4	..	47
..	..	..	..	Utica, N. Y.	18	34	95	107
44	56	461	796	Washington, D. C.	..	..	..	..
..	..	..	..	West Orange, N. J.	52	60	199	248
35	45	190	185	White Plains, N. Y.	6	30	61	100
67	89	500	470	Wilmington, Del.	12	14	174	175
136	244	911	1111	Worcester, Mass.	..	..	..	..
57	81	391	455	Yonkers, N. Y.	..	..	..	..
5821	9945	36150	46783	*Totals*	2373	4216	18419	28014
—41.4		—22.7		*Percent Change*	—43.7		—34.2	

*Permits are not total sales in each market since none are reported from suburban areas, which normally account for 20% to 60% of total sales in each market; nor are they an accurate index where enforcement is lax. Rightly used, however, they are a useful working index.

Bread and Butter For Both of Us—


Oil and Coal-fired Furnaces
Universal Furnaces —34 combinations from one basic unit
Oil-fired Boilers
AMERICA'S MOST COMPLETE LINE OF FINE HEATING EQUIPMENT
Low and High Pressure Oil Burners
Oil and Gas-fired Wall Furnaces
Domestic, Commercial, Industrial Stokers
Gas-fired Furnaces
Gas Conversion Burners

Specialization safeguards Winkler Dealers



Winkler Training Institute

In this completely equipped building Winkler employs modern Army training methods to speed up learning. In the Sales and Engineering Schools, Winkler trainees *hear . . . see . . . and actually do the things* which assure successful selling and the proper application of Winkler Products.

Just as the sale of heating equipment is *your* bread and butter, so it is with *us!*

Winkler makes quality heating equipment—*and nothing else!* The development and production of this material is not secondary to some other, more important phase of the company's business. *Heating equipment is our lifeline, not a side line.*

That's why Winkler Dealers have utmost confidence in their Franchise as a *protected and enduring asset!* It is likewise a *growing* asset—the Winkler line of automatic heating products is now so comprehensive that virtually every type of buyer can be reached.

Winkler Training Schools develop men for lasting success

What better evidence of company stability than the Winkler Training Institute? These training schools represent a substantial investment—established solely to help Winkler Dealers profit fully from their Franchise. Enrollment is free to Winkler Dealers and their personnel.

The Winkler "Safeguarded Business Opportunity" is open in some territories. Write today for information.

WINKLER

AUTOMATIC HEATING EQUIPMENT

U. S. MACHINE CORPORATION
Dept. H91, Lebanon, Indiana

Government Influences on Fuels

by
Milburn Petty

WASHINGTON — Overall, fuel oil supply appears ample for the coming winter—but there are still some independent primary and secondary suppliers who have been unable to line up enough to meet all their demands.

Officials of the Petroleum Administration, however, have promised to do all that they can to see that independents get their fair share of supplies.

PAD has received complaints that some independents face a complete cutoff unless they go branded. Others have been told to expect no more than they received last year even though PAD has predicted a 14% demand increase.

Wants Fact-Finding Committee

PAD officials would like to set up an industry fact-finding committee to check on these complaints but, so far, they have been barred by the Department of Justice's ruling that industry groups cannot collect such data.

However, PAD still hopes that DJ will make an exception in this case.

Price Advance on No. 2 Asked

Twenty-seven independent primary suppliers, handling about 40% of the total fuel oil sales in New England and the Middle Atlantic states, "are limited in their 1951 purchases to their 1950 volume."

Such was the statement by Harry B. Hilts of the Atlantic Coast Oil Conference in urging the Office of Price Stabilization to increase ceilings on No. 2 heating oil and kerosene so that these independents can be protected against higher tanker rates on their FOB purchases at the Gulf.

Tanker Rates is the Key

First reaction of OPS officials was that too small a volume was involved to justify an across-the-board raise in ceilings for heating oils.

It could be handled by subsidies—but OPS doesn't like that method.

Another way would be for the major suppliers to take care of the relatively small volume involved, each taking on its pro rata share. OPS is considering this approach and may ask PAD to handle it by directives.

Real key to the situation is tanker rates but, with ceilings about 200% above USMC, the only solution in event of rises would be a rollback.

OPS plans to set up a tanker industry advisory committee to study the rate situation. OPS may ask their ideas on a voluntary agreement to hold domestic rates at a "reasonable" level.

PAD Bans New Gas Service

PAD's order banning natural gas service to new space heating facilities in sixteen eastern and mid-western states went into effect August 22. These are the states where PAD foresees a tight gas supply situation. In 13 others, PAD is simply asking for reports.

Virginia and Maryland have certified that they can handle the gas shortage situation themselves so they are automatically exempted. About 50 gas companies, mostly in New England, have asked for exemptions.

FPC Decides Phillips Case

Meanwhile, the Federal Power Commission has handed down its opinion holding that sales of gas by Phillips Petroleum Co., even though moving across state lines, are not subject to the FPC's control. Vote was 4 to 1.

Dissenting, Commissioner Buchanan said that this left the door open to rate increases under the escalator clauses in Phillips' contracts with gas companies.

DJ Starts Gas Investigation

FBI agents have been busy interviewing officials of some of the larger gas pipelines. Their questions indicate that the Department of Justice may try to work up some sort of antitrust case involving gas.

DJ seems to have the idea that some pipeline companies aim to "monopolize" the gas business. Gas men are puzzled as to how DJ could hope to make such charges stick when the companies are regulated by FPC and the states.

On another front, the gas pipelines are faced by what some call "the most mischief-making, revolutionary" step ever taken by Interior Department. It is an order implementing the law's requirement that gas (or oil) lines crossing public lands operate as "common carriers" and it would require them to expand to double their present capacity, if necessary, to handle all the gas offered them to transport.

"Be Sure of Fuel Oil Supply"

While overall supplies will be adequate, there may be spot shortages of fuel oil because of bottlenecks developing in transportation.

So, PAD officials have advised oil burner manufacturers to make new installations only where the consumer has an assured supply of oil.

This was during a conference with the manufacturers at which NPA suggested they look ahead to "possible standardization" of models in future production to save materials.

OPS Studies New Price Law

OPS plans a meeting soon with its petroleum industry advisory committee to discuss how the new controls law affects oil price ceilings.

One view is that, by allowing each seller to petition for adjustments based on his own costs, the new law might mean the end of posted prices.

Others say the new law allows price adjustments commodity-wise.

PAD Studies Effect of Iran

If the Iranian oil troubles are not cleared up by the end of this year, oil supplies of the friendly nations will be inadequate to meet their needs even though operations are all-out everywhere else.

Even so, it is considered unlikely that the Truman Administration would risk the political reaction sure to result if the U. S. was rationed in order to help Europe make out.

May Raise Oil Expansion Goal

PAD's program to expand domestic oil capacity, by a million barrels daily (15%) by the end of 1953, seems not enough. So, PAD may propose to the top planners that this be raised by 500,000 B/D. Civilian durable goods would have to be cut back to provide steel for the oil program.

Also, the overseas expansion plans may be enlarged because of what has happened in Iran.

Serving the V.I.P's.

Quackenbush has built a successful Business concentrating on personal Services

by
Bert Dunphy

IN 1945 WHEN Joseph H. Quackenbush at the age of 53 started Quackenbush & Sons, Inc., Paterson, N. J., the company was capitalized with $1,000 and began with 22 customers. Last year slightly more than a million gallons of fueloil were delivered to 500 customers and 83 burners and units were sold. Best of all, as Quackenbush says, the company has prospered, increasing its sales last year more than eight times the 1945 volume, and operates without a payroll, except for officers.

Quackenbush conducted the business alone for about a year-and-a-half. Then, one of his sons came home from military service, followed in another year by the second son, and both became active. Now, Quackenbush handles nearly all the inside work and the two sons, R. Donald and Joseph, Jr., do the selling. Since its inception, the original capitalization has not been added to and the business has progressively increased.

The wife of one of the sons gets out monthly statements, which never have failed to go out on the first of each month, and the rest of the office routine and record keeping is done without the assistance of any outside help.

Nor are there any employees to do burner service and installation work and fueloil delivery. For both of these, exclusive contracts are made with local firms, one covering the burner work, the other fueloil delivery, and neither firm does any of this type of work for itself or for any other company.

The effectiveness of the fueloil delivery arrangement is attested to by the fact that slightly more than a million gallons delivered last year were handled by one truck, paid for on a per gallon basis. Quackenbush has to do nothing to the truck in the way of care or maintenance except painting. This has been done again recently, and if the volume of fueloil gallonage becomes so great that another truck is required, the contract with the delivery firm specifies that it must provide it.

Figuring installation costs on burner sales is simplified, too, by the contract with the installing firm since this is done on a flat fee basis. Fees have been worked out for the various types of jobs, depending upon the type of burner and the accessories that are sold with it. Burner service is handled on a per call basis.

The firm is a Williams Oil-O-Matic dealer, also stocks H. C. Little furnaces, Hunter aluminum storm windows and screens and sells Essoheat fueloil largely, but maintains no bulk storage. Pick-ups are made either from Esso at Hackensack, N. J., or from Coastal Oil at Passaic, N. J., with pick-ups made from local sources.

Under these arrangements, the firm has concentrated largely on first selling a customer and then keeping him sold, freed from the added responsibility of fueloil delivery or burner work. The policy is to think of the customer as a "V.I.P." and to let him know that he is regarded as such by the company.

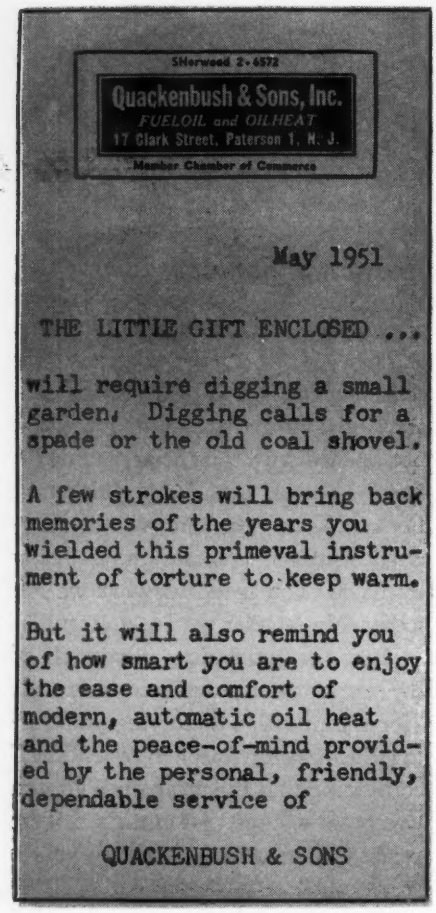
This year when the company was seeking new fueloil and service contracts, the attractive mailing piece sent out opened with this theme, saying, in part, "You're our Very Important Person. You're the one we are interested in, eager to please and to know by name. You made us what we are today. No wonder we are grateful."

And, the concluding paragraph of the letter again expressed gratitude "for the privilege of serving you during the heating season now ending," continuing that the company's growth was proof enough that customers were pleased by its creed—"to serve you as we would like to be served."

With the mailing was included a copy of a "Protector Policy," which covers free repair or replacement of burner parts, plus oilburner cleaning and maintenance, and a simplified post-card return, requiring only the signing of the customer's name and address and the checking of any one of four services offered.

These include automatic delivery of fueloil under a degree-day system, available also on a budget plan. This begins on July 1 of each year and runs

Last year *this truck, parked in front of the showroom of Quackenbush & Sons, Inc., Paterson, N. J., delivered slightly more than a million gallons.*



SHerwood 2-6572

Quackenbush & Sons, Inc.
FUELOIL and OILHEAT
17 Clark Street, Paterson 1, N. J.
Member Chamber of Commerce

May 1951

THE LITTLE GIFT ENCLOSED ...

will require digging a small garden. Digging calls for a spade or the old coal shovel.

A few strokes will bring back memories of the years you wielded this primeval instrument of torture to keep warm.

But it will also remind you of how smart you are to enjoy the ease and comfort of modern, automatic oil heat and the peace-of-mind provided by the personal, friendly, dependable service of

QUACKENBUSH & SONS

This card *accompanied a packet of zinnia seeds sent to each customer during May.*

for 10 months, computed by taking last year's heating cost, adding the cost of annual cleaning and service charges that the customer selects, and dividing by 10 to arrive at monthly payments. Quackenbush does not use a coupon book for making the payments, but instead sends out monthly statements. He does not discount the effectiveness of coupons, but is more interested in the opportunity the statement gives to contact each purchaser each month and include regularly a piece of the well-done promotion that the company prepares and distributes.

The second box the customer can check asks for a summer fill-up, stressing that a full tank cuts down rust and scale formations from condensation of moist air admitted through the vent pipe. To protect against a possible price decline after the summer fill-up has been made, Quackenbush includes in the covering letter an offer to refund whatever the reduction might be.

The third box is an agreement to pay for fueloil deliveries under the budget plan, with the fourth check to be made alongside one of three service plans.

The first is all-inclusive burner-boiler service, guaranteeing for the life of the policy to replace or repair at no additional cost all oilburner parts and controls, vacuum clean the system, burner conditioning and adjustment, plus all necessary emergency calls throughout the year. For fueloil customers the total cost is $25, with the same policy offered to those who do not purchase fueloil from Quackenbush for $35.

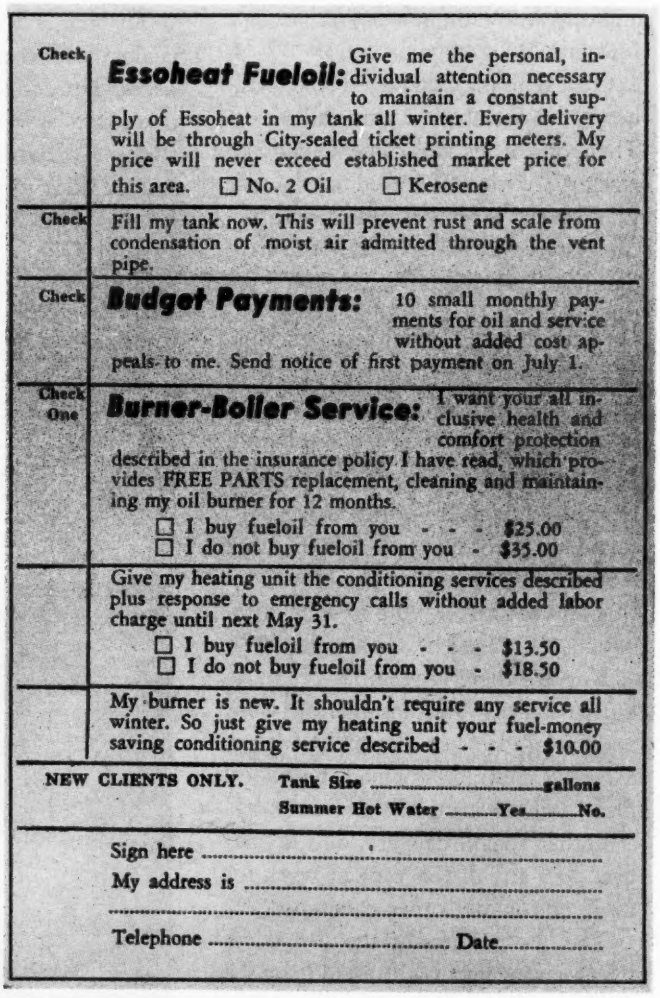
Selling copy for this plan points out that the charge for replacement of the fuel unit, oilburner motor, transformer or protectorelay would exceed the entire cost of the policy.

An alternative plan offers the vacuum cleaning, burner conditioning services and emergency burner service until May 31 of next year for $13.50 to customers, $18.50 to others, with a third plan for the benefit of new oilburner customers. This assumes that the new burner should not require any service and is an opportunity to arrange for the conditioning service only at a cost of $10. Minimum service calls then are billed at $3.50.

During May each customer received by mail a packet of zinnia seeds, accompanied by a cleverly written card that said briefly that the digging required to plant the seeds would bring back memories of the old coal shovel and also should bring to mind "how smart you are to enjoy the ease and comfort of modern, automatic oil heat and the peace-of-mind provided by the personal, friendly, dependable service of Quackenbush & Sons."

Coming as it did a month after the last statements were sent out for budget payments, the mailing was effective psychologically when the customer opened it and found a gift instead of a bill. Other than that the mailing was a success and the company still is receiving compliments on it. Each mailing cost about 10¢ and, considering the reaction, it was well spent.

Another similar piece was sent out in the form of a blotter, tendering "Greetings on Independence Day," extolling the praises of the American way of life, despite income and other taxes, with the observation that "no monarch of old could have had all his combined magicians change his indoor climate by finger tip dial twist like you and I can. We've got Oil Heat."



Check — **Essoheat Fueloil:** Give me the personal, individual attention necessary to maintain a constant supply of Essoheat in my tank all winter. Every delivery will be through City-sealed ticket printing meters. My price will never exceed established market price for this area. ☐ No. 2 Oil ☐ Kerosene

Check — Fill my tank now. This will prevent rust and scale from condensation of moist air admitted through the vent pipe.

Check — **Budget Payments:** 10 small monthly payments for oil and service without added cost appeals to me. Send notice of first payment on July 1.

Check One — **Burner-Boiler Service:** I want your all inclusive health and comfort protection described in the insurance policy I have read, which provides FREE PARTS replacement, cleaning and maintaining my oil burner for 12 months.

☐ I buy fueloil from you - - - $25.00
☐ I do not buy fueloil from you - $35.00

Give my heating unit the conditioning services described plus response to emergency calls without added labor charge until next May 31.

☐ I buy fueloil from you - - - $13.50
☐ I do not buy fueloil from you - $18.50

My burner is new. It shouldn't require any service all winter. So just give my heating unit your fuel-money saving conditioning service described - - - $10.00

NEW CLIENTS ONLY. Tank Size .....gallons
Summer Hot Water .....Yes.....No.

Sign here .....
My address is .....
.....
Telephone ..... Date.....

When Quackenbush *solicits renewal of fueloil and service contracts, this postcard is included with the mailing. It requires only a signature and 4 checks to enable a customer to sign up for automatic oil delivery, budget plan payments, summer fill-up and a choice of 3 service plans.*

Another indication of the completeness with which the company strives to please its customers and prospects is the thorough way it handles its sales presentations. Loose-leaf books have been made up, containing literature and information on all the burners, units and accessory equipment that is offered. When talking to a prospect, the booklet is opened to each piece of equipment as it is discussed so that he can see and understand the make up of any number of installation combinations that he may purchase. Then, when the formal presentation and estimate is submitted it is bound in an attractive leatherette binder, conveying a feeling that some time and effort was spent in making it complete and comprehensive.

Active in Associations

Coupled with its efforts to put its services on a personal basis, Quackenbush also participates in industry and civic associations. The company belongs to the Paterson Chamber of Commerce, the Fuel Oil Distributors Association of New Jersey and is active in the Oil-Heat Institute of America, whose seal it displays and whose slogan, "Better heat with oil heat," is featured on office stationery.

Also, individually the three firm members belong to other local groups, and, while they were not joined for business reasons, the contacts and associations that they permit have resulted in a considerable number of customers being added to the rolls.

Quackenbush, Sr. before starting the present company, for seven years functioned as general manager for the Crown Oil Co., then at Harrison, N. J., and made extensive use of budget plans and other progressive innovations. When the present organization was set up, it first used the back bedroom of his house as an office. Four years ago, however, it moved to the office and showroom it now occupies at 17 Clark St., located centrally in downtown Paterson.

A visit there leaves the impression of a relaxed, efficient organization, with the feeling that even normal problems and unusual emergencies are taken in stride. The firm's business theory, perhaps, is best expressed in a paragraph that appears on its service contract, under "Personal attention":

"While we are large enough to serve you well, we are small enough to know you by name, not a number in the ledger. You can talk directly with an owner of this business at any time. You can get an answer to your question at once, not wait until a boss is consulted."

PAD issues Order curbing Natural Gas

ON AUGUST 15 the Petroleum Administration for Defense issued PAD Order No. 2, imposing curbs on the distribution and use of natural gas. Written as a nationwide order, it will be applied in no more than 15 states and the District of Columbia at present and went into effect on August 22.

Bruce K. Brown, deputy administrator of PAD, explained that the order was issued to help assure defense industries and present domestic customers of adequate natural gas for heating this winter. It was emphasized that present users, or those who had contracted for gasheating installations before the effective date, would not be affected. The order is intended to insure "maintenance of continued gas supplies for existing customers and to protect defense industries," Brown said, adding that lack of steel to complete pipelines in time to transport additional gas this winter "might endanger defense industry."

Under the Bow Amendment to the extended defense controls law any state that elects to impose its own curbs on gas is not subject to the order if it certifies to the President that it is carrying out the purposes of the Defense Act. The Railroad and Public Utilities Commission of Tennessee already has certified that it is "exercising and shall exercise" its authority to assure adequate gas supplies in that state for defense industries, and Connecticut, Ohio, Virginia and West Virginia have indicated that they probably will issue similar guarantees.

New York, Michigan and the District of Columbia reportedly have accepted the Federal curb and the remaining states where the order is effective, Kentucky, Maryland, Delaware, Massachusetts, New Jersey, Wisconsin, Rhode Island, New Hampshire and Pennsylvania, still are undecided about seeking exemptions.

Suppliers who do not agree to a curb obtained immediate automatic suspension if they requested it from PAD before August 22, but they are required to prove their case before September 15. PAD then can reject or modify the suspension.

Chief modifications of the order as issued, compared with the originally planned restrictions, allow a natural gas seller to add new customers during the next 12 months up to 1% of the total number of customers of all kinds served, permitting appliance dealers to liquidate a part of their inventories.

Also, natural gas sellers may take on an unlimited number of new customers in the first two years after distribution begins. This applies to territories that previously had no natural gas supply or where manufactured gas was supplied to less than 5,000 consumers.

A third modification allows sellers in areas recently converted to natural gas to add new customers in the first 2 years up to 10% of the total number of customers of all kinds existing at the time of conversion.

Prohibitions apply to deliveries of gas by suppliers and acceptance of deliveries by consumers, and, in the case of large volume users, deliveries may not be increased for operating gasfired equipment. Exemptions include furnishing gas for equipment that replaces other gasfired equipment using within 5% of the same volume of gas, or gas for lease operations or well drilling.

Reaction of the gas industry to the Order is summed up in the statement of H. Leigh Whitelaw, managing director, Gas Appliance Manufacturers Association, who called the order "an invasion by PAD of a field in which the states' regulatory commissions are better qualified and are already exercising jurisdiction."

How to Cure flame Pulsation

Part Two; Flame Throbbing not Incurable though its Remedies often are High Priced

by
J. W. Schulz

SERVICE MAN JOE becomes involved in a bad case of flame pulsation trouble through no fault of his own. To get out of the trouble inside of an hour, and thus prove to his boss he is worth his salt, he may have to show a streak of genius. All this is counting on Joe's knowing little about what other service experts are doing to cure flame pulsation. If, on the other hand, Joe has made a point of being well informed on how other service experts cope with flame pulsation, he knows a dozen tricks commonly used to cure this trouble. If he's got the luck of the Irish, he'll try perhaps two or three of these quickly, and wind up with the trouble licked permanently. Otherwise he may have to use other ideas, more time-taking and costly to apply. But if he's well informed, he will be confident from the start that he can lick the trouble one way or another. If he has to use expensive cures, he'll apply them with confidence based on the knowledge that there's no easy, low-priced way out of the trouble haunting the particular installation.

To start at scratch, this certain oil-designed furnace or boiler installed by dealer Jones goes into the throes of pulsation. The owner telephones the service department reporting that the unit tries to tear itself loose from its moorings on starting or stopping, or else shudders in a Gargantuan way all the while it runs. The flame may be rattling doors and windows or dishes in the closets. "Silent panting" of the throbbing flame may tremble the floor over the oil-fired furnace or boiler. The flame may turn smoky when stricken with the pulsation illness, though when healthy and silent it is clean.

Now that he's stuck with a bad case of pulsation, however, Dealer Jones does not want expense to end it. He wants to get out of the trouble for-free. He thinks of Service Man Joe going out and ending the pulsation without spending much time, certainly without spending any money. After giving an hour's attention to the trembling Smith job, Joe should return with a service slip marked, "Pulsation ended. Flame now silent starting, stopping, and running normally. Flame never will start pulsating again."

Service Man Joe should know the following expedients, one or more of which can be used on most jobs to end the pulsation inside of 15 minutes. Using these can give the burner owner relief from the trouble overnight or for a few days, and can impress the boss very nicely.

Expedients for overnight use:

1. Use a much smaller flame temporarily by switching to a lower gph nozzle or dropping the atomizing pressure to perhaps 70 lbs. if the job already has the lowest gph nozzle you prefer to use. Bear in mind, on a job having a 1.0 gph nozzle, that today hundreds of .65 and similarly low gph nozzles are being used.

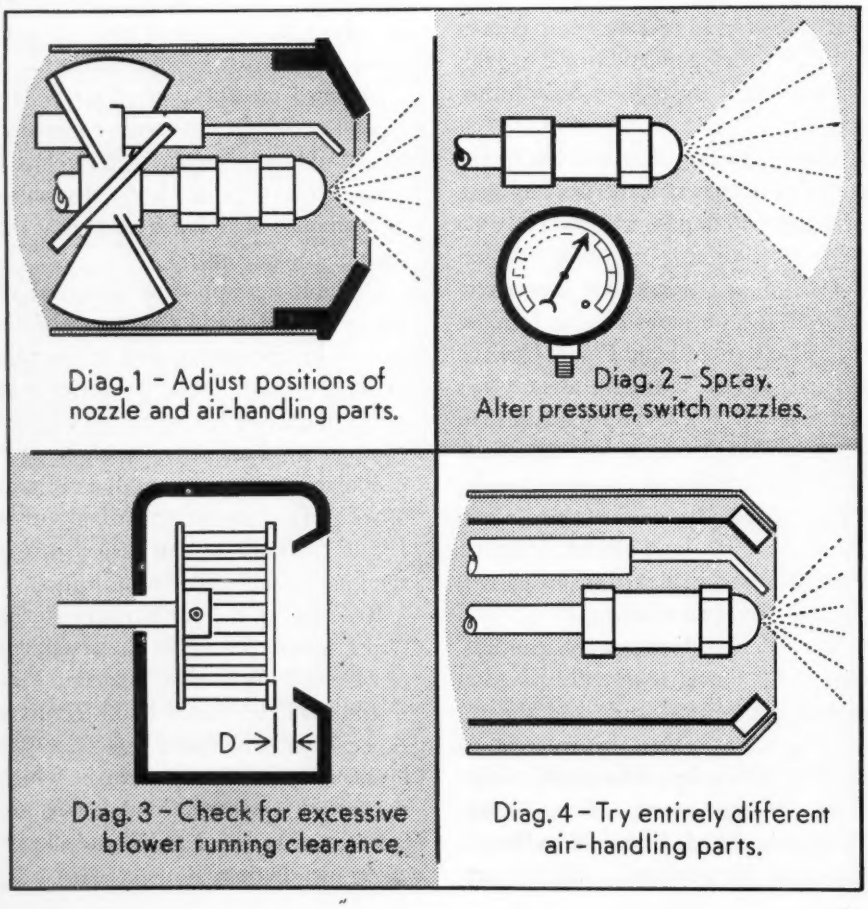
2. Instead or at the same time, adjust for a far brighter flame than you usually aim for. Obtaining lower than 6% CO_2 may help temporarily.

3. Block the firing door or a flue clean-out door open by $\frac{1}{8}$" or $\frac{1}{4}$", to get out of trouble temporarily. Some men drill a $\frac{1}{2}$" hole in a flue clean-out or firing door.

4. Try the lowest to the highest smokepipe draft obtainable by adjusting the smokepipe draft regulator, even blocking the usual type draft regulator shut temporarily, if that gets you out of trouble for overnight.

5. If the furnace or boiler flue travels have spinners, twisters, or other restrictive baffles (provided to give low stack temperature) which you can remove, take out one or more of these temporarily.

6. On a job wired for intermittent ignition, find out if the trouble is caused by the flame's bouncing towards and away from the nozzle after the

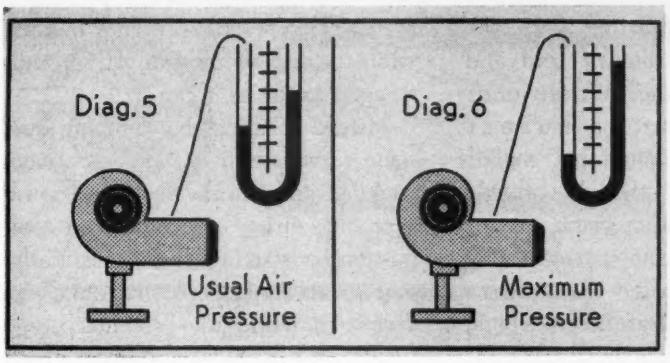


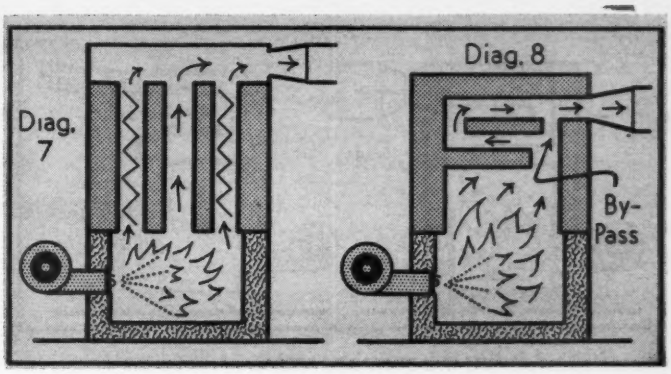
Diag. 1 – Adjust positions of nozzle and air-handling parts.

Diag. 2 – Spray. Alter pressure, switch nozzles.

Diag. 3 – Check for excessive blower running clearance.

Diag. 4 – Try entirely different air-handling parts.





spark is turned off. Try constant ignition by putting a jumper in the control panel from the "Live to Motor" terminal to the "Live to Transformer" terminal. Where this ends the flame pulsation, use constant ignition temporarily, only if you know this will not damage the firing head. Some manufacturers warn that their firing heads can be damaged by the high heat on them that results from using constant ignition instead of intermittent ignition. None-the-less, this switching from intermittent to constant ignition is an excellent way to end pulsation temporarily on certain jobs, and permanently on others.

The above expedients often do such things as waste fuel, create air leaks although diligent service men locate and seal air leaks, and result in improper readings of draft, CO_2, and stack temperature. Soot and products of combustion may come through flue or firing doors blocked ¼" open. If a job was fired at the proper gph rate to start out, cutting its firing rate to end pulsation will result in insufficient heat on coldest mornings.

In using some of these expedients even overnight, then, you calculatedly end the flame pulsation by trading it for a lesser evil. You may, for example, lower the efficiency by 20% and cause an installation to use a gallon or two more oil per 24-hours, in order to end the flame pulsation on your first call. This may permit you to prepare to return the next day, when you will have the plans, burner parts, and time you need to end the flame pulsation in a snipshape manner which includes no shoddy incidental features.

To be sensible and well-balanced in starting to plan permanent remedies which have no disadvantages, you should realize that the pulsation tendencies of certain furnaces and boilers are inbred into the units as thoroughly as though these units were intended to pulsate.

Buckling down to ridding a job of flame pulsation, even though this of necessity takes time and money, Service Man Joe will win out if he takes the steps indicated in the accompanying drawings.

Diag. 1 emphasizes making the best use of adjustments that shift the positions of the nozzle and the air-handling parts in the gun tube. Don't miss the important bet of switching end cones. To obtain best results from burners of certain design, you need an assortment of cast-iron end cones having air openings of different diameters. Higher air velocity around the nozzle comes of switching to an end cone having a smaller air opening; this may provide better mixing of oil and air, and improved directioning of the air flowing into the firebox.

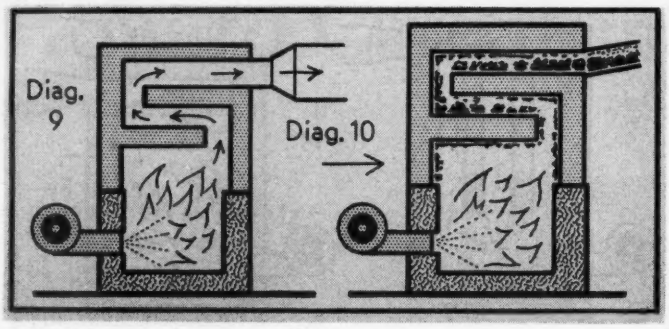
Having on hand a wide variety of brand-new, excellent nozzles is indicated by Diag. 2. Try both full-cone and hollow-cone spray nozzles. Stick to 100 lbs. atomizing pressure, checked with a pressure gage to make certain the pressure is 100 lbs., except for those installations that perform better at perhaps 70 or 130 lbs. pressure.

Diag. 3 shows important distance "D", between the open end of the blower wheel and the air inlet of the blower wheel housing. Usually ⅛" is correct for this, though a lesser distance can be used where this certainly invites no trouble later related to increasing end play of the motor shaft and resultant rubbing of the wheel against its housing. "D" is important to service men because in the field burners have been found running with this distance wrongly as great as ½" to ¾". Smoother, steadier firing has come of correcting this.

Every burner dealer and service man vitally interested in pulsation trouble should have experience with different firing heads, as Diag. 4 suggests. Indicative of the importance of this, one manufacturer of burner specialties indicates his latest, most highly developed combustion heads should not be used where flame pulsation is the big problem. He has another, older combustion head design with a long record for ending panting and pulsation troubles.

Use a U-tube manometer, as in Diags. 5 and 6, to be accurate in evaluating gun tube air pressures. Measure the effects of switching to blowers of the greatest diameters and widths that can be used in the particular burners, and from ordinary gun tube air-handling parts to the special parts that give a high pressure drop in the gun tube, either close to the nozzle or several inches behind it . . . with a blower intake damper on the burner wide open for the checking.

Using a burner design which maintains low or usual air pressure in the gun tube (because a blower wheel of relatively small diameter is used together with air-handling parts that permit almost free flow of air through the gun tube), a starting concussion can stop the output of air from the gun tube momentarily. Starved of blower air, the flame becomes smoky, its combustion rate decreasing for the instant. A resultant drop in combustion chamber pressure invites the flow of blower air. An inrush of air burns the oil vapor which has accumulated, and the concussion produced by this again stops the output of air from the gun tube, bringing conditions to the start of the cycle. Obviously to have the delivery of air to the fire greatly affected by firebox concussions is disadvantageous. It can lead to panting, trembling, and pulsation. The use of maximum feasi-



ble air pressures in the gun tube assists in avoiding these troubles.

Diag. 7 suggests removing zig-zag baffles from flue travels to end pulsation. Usually considered an expedient suitable for only temporary use, on certain unusual installations which have been studied thoroughly this step has led to no great increase in fuel consumption. Use a stack thermometer to gage the effect on stack temperature. Compare the idea of removing several flue baffles with the idea of reducing the restrictive effect of every baffle originally in the flues.

The boiler on a certain installation had the by-pass shown in Diag. 8, which may have been provided by the boiler manufacturer to avoid flame pulsation trouble. In any event, severe pulsation was ended on the job by opening this by-pass after it had been closed by a service man determined to minimize the stack temperature and stack loss. The boiler manufacturer declares this by-pass should be left open.

Diag. 9 suggests use of an unusually large smokepipe, a step often effective for ending pulsation of furnaces and boilers originally provided with smokepipes smaller than about 7". Diag. 10 points out that plugging of the flues, which of course increases flue gas velocity and draft drop, should be investigated when pulsation is found.

The use of breather tubes for the combustion chamber, as shown in Diags. 11 and 12, has rightfully been called the sure cure for pulsation. Where all other steps fail, many service experts fall back on the use of such tubes, knowing this will end the trouble once and for all time.

True enough, the use of the two 2" pipes in the front wall of a firebox reduces efficiency and increases the oil consumption on a job having over-fire draft that varies greatly, thus is low at times and excessive at other times. Starting with the chimney cold and the over-fire draft zero, a burner should not smoke. If the tubes provide appreciable air for combustion only after the over-fire draft becomes high, then at times of high draft the CO_2 reading may be much lower than it is for starting. Installations which lack draft controls unfortunately tend to provide excessive over-fire draft during the months in which most the fuel is used, for they provide insufficient draft or proper draft only when their chimneys are not normally heated.

Use the ideas of Diags. 11 and 12 to end pulsation trouble, then, but make certain when you use them to take steps to control the over-fire draft especially closely. Use excellent smokepipe draft regulators, and aim for over-fire draft during normal operation no higher than .02". Over-fire draft of .01", or even "a trace" (definite negative over-fire draft, less than .01") is found suitable for certain installations.

In addition, curb the action of the breather tubes so that it is no greater than needed to end the pulsation trouble. Where feasible, block the tubes somewhat.

The swinging disc damper, patterned after a swinging disc draft regulator, may be used to prevent an outpouring of products of combustion on cold starts. Screw "A" prevents the disc from swinging outwards and opening at times of plus pressures in the firebox. Screw "B" prevents binding while the disc, swinging inwards, tends to open as far as it can.

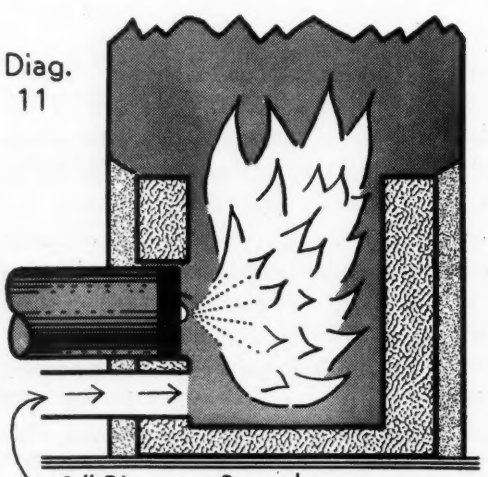
Instead of using the swinging disc, some service men use the rock wool packing shown in the diagram, to prevent outpouring of products of combustion on starting; more specifically, to prevent soot from blowing out of the firebox and into the basement.

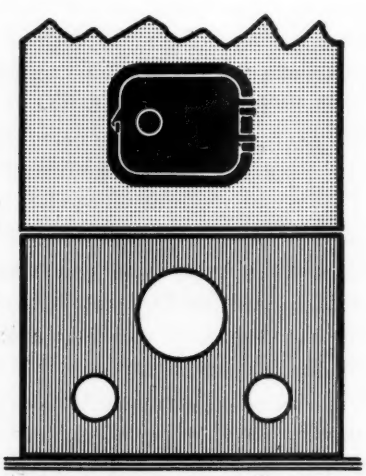
The coasting blower wheel has been welcomed by some dealers as a cure for stopping pulsation. Other dealers find the free-wheeling clutch used in one well-known make of burner tends to give welcome freedom from both starting and stopping pulsation.

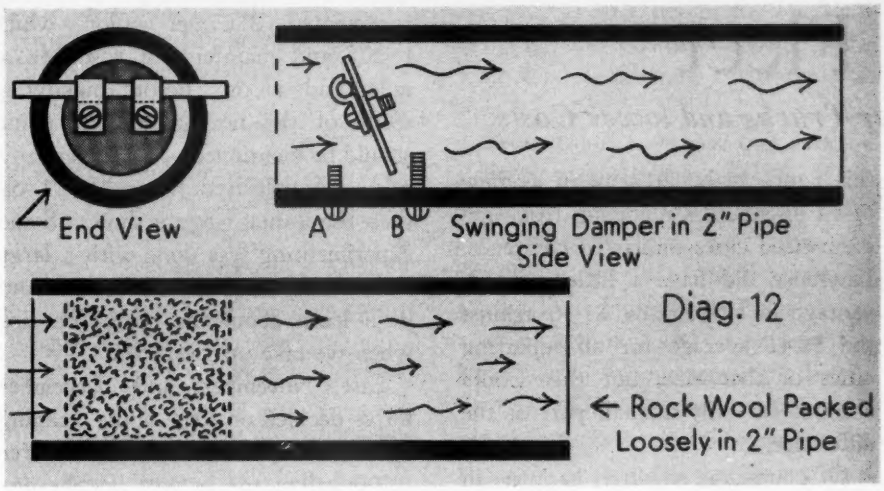
Stopping pulsation has been ended by adding to a pressure burner a nozzle-line solenoid valve, normally closed and wired in parallel with the burner motor; also by using a solenoid valve as an unloading valve for the fuel unit.

Enthusiasts for delayed-opening oil valve arrangements, which permit pressure burner motors to spin for a few seconds before oil comes from the nozzles, find that these help end both starting and stopping pulsation.

Special equipment of the above-mentioned types should be thoroughly well known, of course, to every man who believes he qualifies as a burner expert. There's no substitute for first-hand experience with such equipment, gained on a few trial installations. If reading up on one of the new devices causes you to believe it may have merit that helps out with service problems in one way or another, by all means try out the device on one of your pet installations!







Not covered in these two articles on pulsation, because it forms a discussion by itself, is the topic of the effect of chimney draft on pulsation problems. However, no expert investigating flame pulsation fails to put a draft gage to excellent use. There's just one more thing in this connection: Check on the supply of outside air to the equipment room, when you encounter flame pulsation and similar trouble. Make certain that robbing the equipment room of air and failing to provide enough make-up air from outside is not the cause of the trouble.

As the first part of this discussion of pulsation related, the price of a furnace counts. A furnace designer may try to provide an exceedingly low-priced furnace of fair efficiencies by engineering towards (1) combustion volume only sufficient for proper combustion, not oversize in a manner that reduces pulsation tendencies; (2) high-speed flue passages that give high heat transfer rates for the small area of indirect heating surfaces involved, but which lead definitely to pulsation tendencies; and (3) of course, the modern air-tight, leak-free construction which is undoubtedly desirable, but which unfortunately gives greater flame pulsation tendencies.

Desperate to outdo his company's competitors in the field of producing lowest-priced winter conditioning type warm-air furnaces, one designer squeezed down the combustion volume and upped the flue gas velocity in a proposed new furnace model until, using the make and model burner usually used in this line of furnaces, there was tremendous difficulty with flame pulsation; even in laboratory tests of the first hand-made models of the new furnace. To use the larger combustion space and flues of greater cross-section, which he knew would rid the new furnace of its pulsation tendencies, would have upped the costs of making the proposed price-leader furnace intended for smallest, cheapest homes.

The furnace designer therefore gave out word to six burner manufacturers, who though trying hard had been unsuccessful for years in selling him the pressure burners for his units, that the make burner he'd been using for years gave too much pulsation. He announced he was in the market for a make and model of pressure burner which would give no flame pulsation problem in the new, small furnace unit.

All told, then, seven manufacturers of pressure burners worked day and night to produce test models of burners which would not give pulsating flames in this tiny, tricky furnace.

Hounded by bosses hysterically eager to snatch up the furnace manufacturer's burner business, the technicians in several of the burner factories worked day, night, and weekends to design towards less pulsation. They concentrated on blower wheel sizes, blower housing designs, a great variety of air-handling parts for the gun tubes, nozzles of many types, and gadgets that could be added to pressure burners to end pulsation tendencies. It goes without saying that any gadgets being considered for use to lessen pulsation had to be of low, almost negligible cost; no high priced gadget could be used because the furnace manufacturer simply could not consider paying even the slightest amount extra for the burners used to fire this cheapest-of-all furnace unit.

Some of the burners tried in the laboratory did produce considerably less pulsation than others, though in the tiny, tricky furnace every burner was ready to pulsate at the drop of a hat. Not being in a position to admit he had produced a furnace unsuitable for oil firing by a pressure burner, the furnace designer decided he had to select the burner make and model least likely to give flame pulsation troubles on typical installations. Meanwhile, men like Service Man Joe would have to cope with any flame trembling trouble that came up on installations.

From the foregoing, which is an actual case history readily understandable to men in the furnace and oilburner manufacturing fields, several points are apparent.

First, some furnace designs have less flame pulsation tendencies than others; it's possible to produce a furnace that acts as though designed to give flame pulsation trouble.

Second, some pressure burners give more pulsation trouble than others, firing a small, tricky furnace inclined to tremble. By taking certain steps, you can change a pressure burner in a way that reduces or eliminates starting or stopping pulsation.

Trembling with the burner running normally can be affected by changing the manner in which the air is delivered to the combustion space, and the manner in which the oil is sprayed from the nozzle. On an actual installation, a service man can't change the design of the blower housing of a burner or switch to a much bigger blower wheel. In those respects, what he can do is limited compared to what the designer of an oilburner can do. But the service man can switch to any nozzle on an actual installation, thus he can produce any spray that can be produced by an oilburner designer. He can make certain changes related to the blower wheel. He can change the air-handling in the gun tube of the burner, hence the manner in which the air is delivered into the combustion space. Aside from adjusting air-handling parts, he can change parts, even producing the effect of installing an entirely different burner.

Shuffling the Fleet

Cross Coal moves toward fewer Trucks and lower Costs

by
Robert Gray

LAST MONTH THERE was a story explaining the simplified automatic delivery system of Cross Coal Co., Lawrence, Mass., a combination of degree-days and route methods, operated, both inside the office and out, through the use of a single card form. While up at Lawrence getting this story it was interesting to look over a lot of operating cost figures and to see the changes in the fleet make-up that are bringing very satisfactory returns.

As so frequently happens in fueloil marketing the distributor hangs onto a number of old trucks long after he has any need to make full use of them. On the retail delivery end of the business, that was the situation with Cross a year ago. The company had seven trucks on heating oil and range fuel deliveries, but only three of these were doing what you'd call a real job. One truck alone, a 2,000 gallon size, was accounting for 37% of all the gallonage delivered.

Even with that situation, costs were not high. TABLE I shows the complete costs for the year 1950 for the seven units. The table mentions only six trucks . . . the other one was completely idle all year and its only cost was a little maintenance, insurance and tax. Notice that the six delivered a total of 2,638,600 gallons during the year, or an average of 440,000 gallons each, but this is an instance where averages don't mean much.

One Truck 1,138,553 Gal.

The busiest truck delivered 1,138,553 gallons, the next 807,898 gallons the third dropped to 348,990 gal. and the remaining three ranged down from 164,503 to 62,556. But even with this relatively unsatisfactory situation, delivery costs were low. Notice that the whole fleet showed an average delivery cost figure of .56¢ for the year. In the January issue of FUELOIL & OIL HEAT the results of the annual statistical survey showed this figure to be .91¢ as an average of all distributors reporting from medium sized cities similar to Lawrence. Lawrence did have a little cost advantage in labor rates, $1.30 against the $1.41 average for all reporting cities of that size, but this would account for only a small part of the difference.

Of course, as so often happens in fueloil marketing, it is not possible to clearly isolate all costs in the table and relate them to No. 2 heating oil because the company also sells a modest quantity of range oil and the truck operating figures reflect this. However, it should be noticed that where range oil influences any of the figures they have a tendency to raise the ratios, to cost more, than if only No. 2 were sold.

In general, the table is quite clear on the various items without further explanation. By giving you both the gallonage delivered and the miles operated, you can relate any of the individual cost items to the totals and arrive at a unit basis. For example, the wages of the truck drivers represented .33¢ per gallon, while repair and maintenance cost 14¢ a mile, and so on. Before making a study of the next table, one point should be mentioned . . . the company sold and delivered more No. 2 oil than the TABLE I figure shows. Some experimenting was done with a large semi-trailer on retail deliveries and we'll learn about the results on this when we take up TABLE III.

Last November and December Cross decided on some house cleaning in the fleet. He disposed of three 1,000 gallon trucks and bought one 2,500 gallon size. Then through the peak months of the past winter he made most of the deliveries with three trucks—the new 2,500 gallon unit, a 2,000 gallon trlck and a 4,550 gallon semi-trailer. There were still a couple of inactive or low output trucks, kept mostly for breakdown emergencies.

TABLE II shows in detail the operating figures for the two busiest trucks in the busiest month, January. Conditions of this kind are so favorable that they become goals for an operator like Cross to shoot for in other seasons and in other conditions.

The two trucks were driven an average of 55 hours a week, and put out an average of 573 gallons per hour at a labor cost of .265c a gallon, and a total of all costs showing only .51c a gallon.

A table like this serves to point up one of the most stimulating management problems in the industry . . . how near can you bring total annual

TABLE I

Operating Costs 1950

Retail Fuel Oil Delivery, Six Trucks

Labor	$8,737.45
Gas & Oil	1,736.75
Tires	364.43
Batteries	76.37
Tools	3.75
Repair & Maint.	4,333.03
Insurance	828.60
Taxes	292.56
Depreciation	2,155.26
Total operating cost	18,528.20

PERFORMANCE	*Hours Worked*	*Gallons Hauled*
No. 2 fuel	4,203	2,271,497
Range fuel	1,861	367,103
Totals	6,067	2,638,600

Cost per hour	$3.05
Total miles	30,212
Cost per mile	$0.61
Gal. del'd. per mile	87
Gasoline, gal.	8,867
Miles per gallon	3.4

RATIOS	*Gallons per hour*	*Cost per Gallon*
No. 2 fuel	540	.56c
Range fuel	197	1.55c

TABLE II

Operating Costs, January 1951
Two Busy Trucks

No. 2 Fuel

	2,000 gal. truck	*2,500 gal. truck*
Labor	$350.79	$371.09
Labor cost per gal.	.25c	.28c
All other truck costs	371.29	299.17
Per gallon delivered	.27c	.22c
Gallons delivered	139,695	133,215
Hours worked	236	241
Total costs per hour	$3.06	$2.78
Miles driven	1,082	1,213
Cost per mile	.67c	.55c
Gasoline used	397	395
Miles per gallon	2.7	3.1
Gals. delivered per mi.	129	110
Gallons per drop	174	183
Gals. delivered per hr.	592	553
All del. costs per gal.	.52c	.50c

TABLE III

Tractor-trailer Operating Costs

3 tractors, 4 trailers, 1950

Labor	$ 7,434.03
Gas & Oil	3,972.76
Tires	860.67
Batteries	39.98
Repair & Maint.	3,722.89
Insurance	676.80
Taxes	630.99
Depreciation	6,038.89
Total Operating cost	23,377.01

PERFORMANCE	*Hours Worked*	*Gallons Hauled*
Over-the-road:		
Bunker	2,553	2,872,718
No. 2 fuel	1,621	2,908,362
Range fuel	359	611,357
Retail delivery:		
No. 2 fuel	607	414,286
Totals	5,140	6,716,723

Cost per hour	$ 4.55
Total miles	75,703
Cost per mile	$ 0.31
Gasoline, gal.	20,681
Miles per gallon	3.7

RATIOS	*Gallons per hour*	*Cost per Gallon*
Over-the-road:		
Bunker	1,125	.40c
No. 2 fuel	1,794	.25
Range fuel	1,703	.27
Retail delivery:		
No. 2 fuel	683	.67

operation to the low cost of the peak period?

The average gallons per drop was only 179 for the two trucks, somewhat lower than you normally think of as good performance, yet the gallons per hour figure of 573 offsets this impression. In the article last month the company's combination degree-day and route system was described—it would have the effect of cutting drop sizes but apparently helps in the other direction.

Tractor-trailer Costs

TABLE III gets into cost and operating figures on a fleet of semi-trailers. During last year the company operated three tractors and four trailers. The fuel was hauled from a tidewater terminal 18 miles away, so the typical trip was 36 miles, more or less.

The bunker fuel was hauled direct from the terminal to the consumer in truck lots mostly. The No. 2 and Range fuels were hauled over-the-road to the local bulk plants and then loaded out again for retail deliveries. Notice, however, that one of the units was used part time for delivering No. 2 at retail . . . 414,286 gallons last year as an experiment. The total delivery cost on this including the long road haul from tidewater was .67¢ a gallon.

From TABLE I we saw that average delivery cost for the truck fleet last year was .56¢. To compare this with the semi-trailer unit, you must add the .25¢ for hauling from the terminal to the local bulk plant and also the cost of owning and operating the local plant, somewhere around .25¢ in itself. Thus the cost of these combined items is 1.06¢ to compare with the .67¢ when the semi-trailer does retail deliveries direct from the terminal.

Uses Semi's in Suburbs

Cross has not tried the semi-trailer in congested city traffic; he has used it for suburban and outlying deliveries, but it certainly made a good showing for those areas.

The cost and performance details in the table will be of interest to any operators of over-the-road units . . . the number of such operators is growing in the fueloil marketing industry. Nearly a fifth of all fueloil distributors, countrywide, operate one or more over-the-road semi-trailers. Most of them, naturally, have considerably longer hauls from their terminals, but they can still make some operating comparisons with the Cross figures, since both the gallonages and mileage are given.

This story of Cross Coal Co.'s truck costs and performance ratios in fueloil distribution was not selected as a paragon of the best that can be done with the various details that were discussed. Jerry Cross, himself, would be the first to refute that impression. The Company's general operation is well above average in the industry; individuals in the Company have done some very resultful thinking, as shown by the automatic delivery story last month. The next improvement to work for, in Cross' thinking, is to raise the average size of delivery up closer to the U.S. average last year of 207 gallons. If that can be done without sacrificing any of the other measurements that have been shown, the necessary study and effort will be more than repaid.

O.I.I.C. furnishes Mats for Oil Progress Week Ads

AN EIGHT PAGE proof book containing 30 suggested advertisements for use during Oil Progress Week is ready for distribution by the Oil Industry Information Committee, 50 West 50th Street, New York. The week to be celebrated is Oct. 14-20.

The Committee will send this book of ads to any interested company and will then supply free newspaper mats of any ad upon request. The local newspaper fills in the dealer's name.

We're going all-out
to keep you comfortable this winter!
● With more than 5 million oil burners in use this winter, demand for fuel oil will be at an all-time peak. This is our assurance to you that we will do everything we can to keep *your* home comfortable in the months ahead. Our automatic delivery system helps us do this job. Inquire about it if you are not getting automatic delivery now.
4 HELPFUL HINTS ON HOW YOU CAN SAVE MONEY —SAVE FUEL OIL
1. Have your heating system checked regularly to be sure you're getting the most efficient use of your fuel oil.
2. Install storm windows and insulation to keep heat in . . . cold out.
3. Keep doors and windows closed. Close off rooms not in use. Draw shades at night.
4. Keep room temperature at moderate level. Turn thermostat down at night.
YOUR NAME HERE
OIL PROGRESS WEEK October 14-20
YOUR PROGRESS AND OIL PROGRESS GO HAND IN HAND

Several of the ads would be effective for fueloil distributors, two of them are specifically on fueloil delivery. The illustration shows one of these, which is available in sizes 2 col. x 109 lines and 4 col. x 200 lines.

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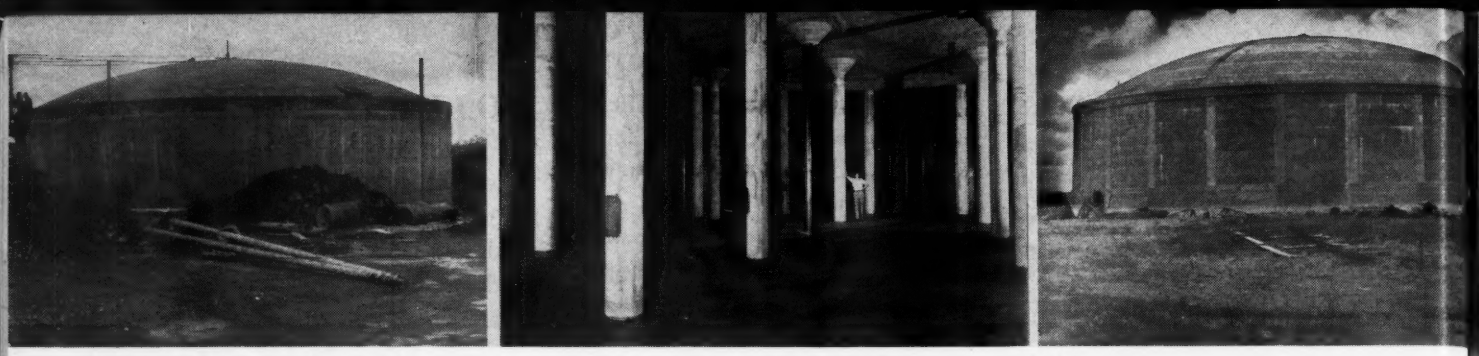
F. A. Hopp has been appointed advertising manager, Cleaver-Brooks Co., Milwaukee, Wis. He formerly was associated with the Delta Power Div., Rockwell Mfg. Co. in Milwaukee for 11 years, as assistant advertising manager and director of publicity, and is a member of the Milwaukee Industrial Marketing Association.



Left and right *are views of finished concrete storage tanks of the type described in the article. The center picture shows the interior of a 25,000 barrel concrete fuel storage tank built for the U. S. Navy. Walls, floor and one column of the tank have been covered with a synthetic rubber sheeting to prevent seepage and protect against the free alkalis in the concrete.*

New concrete bulk storage Tank

Spherical Design reduces Cost to 10% less than Steel

by
Charles L. O'Connor*

CONCRETE TANKS FOR bulk storage of petroleum products have not been used to any extent by the Oil Industry because the cost was too high. Then, before the advent of "Pre-Stressing," concrete tanks developed cracks during the initial setting period. But in preventing cracks by applying this method; the cost was considerably increased, and the possibility of their adoption by the oil industry decreased to the vanishing point.

A new design of concrete tank and improved methods of erecting it, have been developed by the author with a view toward making these tanks competitive with steel in all respects. In regard to durability, maintenance, and speed of erection they will be superior to steel.

*Consulting Engineer, New York.

At the present time steel is in short supply. But the shortage of steel has little or no bearing on the shortage of bulk storage facilities which has developed. The seriousness of this situation was readily apparent as far back as the year 1948, particularly in the New England and Middle Atlantic areas.

The figures compiled by the Bureau of the Census for this year show that the ratio of bulk storage capacity to total consumption for these areas was way out of line. When we consider that the demand for distillates has increased at least 20% since that time without any appreciable increase in storage facilities, it is clear that some immediate steps must be taken if spot shortages of oil are to be prevented.

In setting up a reasonable ratio of capacity to consumption for these areas, it must be borne in mind that many of the points of consumption are not near the primary supplies. Further, since these areas are supplied almost exclusively by tankers, a continued shortage of storage facilities will place an intolerable burden on the transportation system of the industry.

Consideration of these factors leads to the conclusion that the storage capacity of the bulk plants in these areas should be at least 30% of the consumption. But this will only bring the situation up to date. If the consumption of heating oil continues to increase at the present rate, in a period of ten years it will be from 40% to 50% over the present figure.

The accompanying table made up from the Bureau of Census figures for these areas, gives a comparison of the 1948 picture with the one to be expected during the winter of 1951.

It appears from this study that the New England area needs an additional 6,900,000 barrels of storage, and the Middle Atlantic area needs 13,000,-

Fueloil bulk Stations in New England and Mid-Atlantic Areas

Showing number and types of Plants, Gallons sold, Ratio of storage Capacity to Gallons, 1948 (Bureau of Census) and the same Factors adjusted for a 20% Increase in 1951

		1948 FIGURES		HEATING OILS	
Area & Type of Plant	*No.*	*Gallons Consumed*	*Gallons Storage Capacity*	*Ratio %*	*Storage Needed (30% Base)*
NEW ENGLAND	651	1,530,672,000	311,615,000	20.2%	460,000,000 Gals.
Refiner Marketer	362	977,694,000	217,064,000	22.2%	294,000,000 "
Secondaries & Minors	289	552,978,000	94,551,000	17.2%	165,000,000 "
MIDDLE ATLANTIC	1783	3,276,057,000	629,090,000	19.2%	980,000,000 "
Refiner Marketer	967	1,925,507,000	484,631,000	25.6%	580,000,000 "
Secondaries & Minors	816	1,350,550,000	144,459,000	10.7%	400,000,000 "
		1951 ESTIMATED FIGURES FOR HEATING OILS			
NEW ENGLAND		1,840,000,000 gals. Demand (est.)		550,000,000 gals.	Storage (est.)
				— 311,615,000 "	" 1948
			Required Increase	238,385,000 gals.	
MIDDLE ATLANTIC		3,940,000,000 gals. Demand (est.)		1,182,000,000 gals.	Storage (est.)
				— 980,000,000 "	" 1948
			Required Increase	202,000,000 "	

000. A total of 20,000,000 additional barrels of storage for the two areas would adequately take care of the extraordinary increase in the demand for heating oil.

This is a condition that confronts the industry and not a theory. Other sections of the country are in equally bad shape. Since there is not enough steel on hand to even start this job, renewed consideration should be given to the use of concrete tanks for this purpose.

The main objections to the use of concrete no longer exist. The formerly high price of concrete tanks was due mainly to the complicated and expensive wooden forms that had to be employed. The cost, as we pointed out, was further added to using so called "Pre-Stressing Steel Bands" around the outside of the tank. That did it! Concrete tanks were "out" because the cost of them couldn't possibly be written off in under eight or ten years.

The new design of tank will be priced so that it can be written off during three or four years of normal operation. In addition to a quick write off, the maintenance of these tanks is extremely low, and the life of them is measured in decades rather than years.

From an operational standpoint, the design of these tanks is superior to the ordinary cylindrical steel tanks. The filling and discharge lines are incorporated in the tank structure, and a built in "Clean Out" line allows the continuous withdrawal of sludge and condensed moisture.

The cost of eliminating the present shortage of storage will run into millions of dollars. But a considerable saving can be effected by the use of these new designs of concrete tanks, which in quantity, can be installed for approximately 10% less than steel tanks. And in an undertaking of the size indicated, a 10% reduction will run into a considerable sum.

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Richard G. Phelps has been appointed as petroleum representative in the New York Regional Office of the Office of Price Stabilization. He formerly was associated with Colonial Beacon Oil Co., the Meehan Oil Co., and the E.C.A.

New York City changes Rules for burner Tests

AFTER A PUBLIC HEARING on July 13 before the New York City Board of Standards and Appeals, certain changes in the rules governing the installation of oilburners in the City were approved.

Effective August 13, the former requirement that tests had to be made in the presence of a Fire Department inspector was eliminated. Under the new amendment the installer must make the required test and certify by a sworn affidavit to the Fire Commissioner that the test has been completed in accordance with the rules. No permit can be issued until the affidavit is filed and a falsified affidavit will subject the installer to criminal liability for false swearing, plus the possibility that his license to install oilburners will be revoked and that he will be fined $500 or imprisoned for a term up to six months, or both.

Adoption of the amendment was accomplished through the joint cooperation of the Fire Commissioner, the District Attorney of New York County and the New York Oil Heating Association, Inc., Long Island City 1, N. Y., representing the oilburner installers.

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Advisory Committee holds Meeting in Washington

THE OIL BURNER INDUSTRY Advisory Committee met on August 8 in Washington, with Charles H. Burkhardt, Heating Branch, Building Materials Division, National Production Authority, presiding. In attendance were the following Committee members: H. C. Day, American Radiator & Standard Sanitary Corp.; D. Grey Knowles, Anchor Post Products, Fluid Heat Div.; Joseph Hearst, Automatic Burner Corp.; R. C. Vroom, Peabody Engineering Corp.; J. Verne Resek, Cleaver-Brooks Co.; L. A. Casler, Eureka Williams Corp.; C. A. Miller, Kresky Mfg. Co., Inc.; W. R. Long, Long Mfg. Co., Inc.; Edward K. Priest, Lynn Products Co.; R. S. Bohn, Preferred Utilities Mfg. Corp.; R. C. Westover, Ray Oil Burner Co., San Francisco; Fred Ravnsbeck, Staffco Eng. Co. and R. H. Gustafson, Sundstrand Engineering Co.

C. S. Dieter, Bethlehem Foundry & Machine Co.; R. E. Andler, Electrol Burner Mfg. Co. and E. A. Freudiger, C. L. Rayfield Co., also on the Committee, were not able to attend.

The Committee was informed during the meeting that applications should be made direct to the appropriate NPA industry division when mills cannot supply materials for authorized production schedules under CMP. NPA advised the Committee to expect possible standardization of oilburner models in the future to conserve critical materials and revealed that manufacturers who do not use allotments of material because of cut-backs are required to return them by executing form CMP-12, NPA said.

George Wilson, supply-transportation director for the Petroleum Administration for Defense, acknowledged that domestic heating oil stocks in primary storage east of the Rockies appear to be adequate and satisfactory for this time of the year. He added, however, that only a "small cushion" remains in refining capacity and that the transportation outlook is not too good, with the result that it is imperative to speed up filling customer storage and that new burner installations be made in areas where oil supply is assured.

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A. F. Ludolph has been named district manager for northern Illinois, Combustioneer Div., The Steel Products Engineering Co., Springfield, Ohio. He has had 24 years' experience in the heating industry, having started with the original Combustioneer organization in 1927. In 1932 he organized the Heating Div., Fairbanks, Morse & Co., remaining there until the division was discontinued last year. Mr. Ludolph will represent the entire line and, with his family, resides in Oak Park, Ill.

Sheet Metal on Wheels

Moll handles Installations up to a hundred Miles from Fargo

A CONVERTED SEMI-TRAILER TRUCK, that is a self-contained mobile sheet metal shop and enables the company to simplify installations within a 100-mile radius, is an important factor in the success enjoyed by Moll's Heating Service, Fargo, North Dakota.

J. P. Moll, manager of the company, has passed the 25-year milestone in the oilburner business, having begun his career as a service man working on conversion oilburners in June 1926. At that time he serviced mostly Petro and Sundstrand oilburners, and, after a factory training course, he became associated with an Oil-O-Matic dealer. Then, for the next few years Moll serviced and installed these burners, as well as servicing many other makes.

In 1939 the present company was formed, with personnel consisting of Moll and two others, and became dealers for a well-known make of furnaces. That the operation was successful is indicated by the fact that since its beginning the company has had as many as 38 employees at one time, engaged in both installation and service work. About a year ago Moll became a dealer for The Coleman Company and has featured its Blend-Air units.

The company traditionally has been promotion minded and couples its numerous displays at builders' shows, sportsmen's shows and county fairs with a line of services that lays out complete heating systems. Moll employs full-time heating engineers and draftsmen to augment his sales and installation crews.

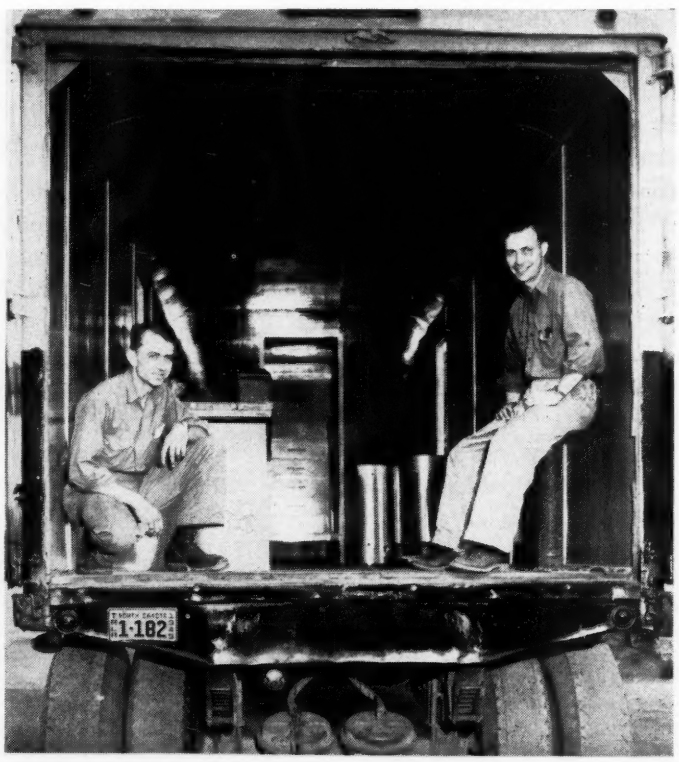
Additionally, there is a regular schedule of spot radio announcements and display advertising in newspapers that feature Blend-Air and above the office, Moll has fitted out a recreation room where films on the units are shown to contractors and individual home builders.

The mobile sheet metal shop has been operated for the past three years and has proved its worth by saving at least several hours of labor on each job. The semi-trailer converted for this purpose is 28-ft. long, equipped with tools for on-the-spot fabricating of ductwork for conventional jobs or for handling the 3½" heat tubes used with Blend Air installations. Equipment includes a 6 ft. brake, Lockformer, shear, roller and hand tools.

In the front portion of the truck, double decker bunks are provided for 4 men, along with closet and drawer space for each man and cooking facilities. With this arrangement it is possible for the firm to serve a territory in about a 100-mile radius from Fargo, since the truck can move from one job to another without coming back to the shop. Besides the saving in time, this has minimized traveling expenses and allows an installation crew to go to work immediately upon arrival.

Another feature of the truck that makes it a completely self-contained shop is its portable 110 volt light plant, so that the electric equipment can always be operated. The semi-trailer also is heated, permitting it to be used throughout the year.

Moll also has developed a work-in-progress board to assist the foreman in his daily scheduling of work. As soon as a sale has been made, the cus-



Mobile shop interior. *At front end are sleeping and cooking facilities for four men away from home.*

INSTALLATIONS
CUST. CUSTOMER
ADDRESS
VIRGIL REECE
NATHANIEL T. BIN
CARL PARKUM
CLIFFORD LOBERG
LEIF THANE
FOREST ADAMS
HAROLD CHRISTIANSON
ROBERT D. COOCH
CHAS. SCHMIDT
ARDIE JOHNSON
THOMAS McCORMICK
P. A. TOMKINS
KENNETH SILL
C. M. SIMONSEN
GARFIELD PETERSON
KENNETH OLSON
LOUIS HUNCHMAN
PETER ANDA
H. A. JOHNSON
NICHOLI NELSON
M. R. M. SKOWINSKI
O. R. BORSTAD
P. SIMONSON
JOHN W.
92B
92B
92B

Reader questions variable Reserves

Interesting comments on the Cross Coal System as described in last Issue

(Edit. Note—Following is a letter received from W. K. Phillips, manager customer service, Sherwood Brothers Incorporated, Baltimore. Phillips explains why the system of variable reserve factors in a degree-day system, as used so successfully by Cross Coal Co. (August issue) would not work as well in a very large operation like their own. He then points out a method they use to get a somewhat similar result. Because his letter is constructive without being critical, it is reproduced in full.)

THE ARTICLE WHICH appeared in the last issue of FUELOIL OIL-HEAT concerning the inception and development of the fueloil business by the Cross Coal Company was extremely interesting.

There was, however, a group of factors in the article which seem to us to be worthy of further discussion.

While it is realized that it is possible to modify the basic degree day system to better suit the requirements of individual operators, there is also a point beyond which modification will lead to difficulty and possible disaster. It is further realized that the New England locale of the company involved provides somewhat different degree day accumulation than is found in the Middle Atlantic States. By this we mean that degree day accumulation in the northern part of the country is probably of a more regular nature than to be found farther south with the fluctuation in temperatures less frequent and of a smaller degree.

Regardless of geographical location, however, it appears to us that the scheme adopted by the Cross Coal Company in reducing the size of reserves in direct proportion to the increase in K factors might well be conducive to operating difficulties during periods when the accumulation of degree days is abnormally large. If, on the other hand, the company is in position to deliver on a degree day basis regardless of the number of deliveries involved, the reduction in reserves referred to above is of no particular hardship.

In the case of Sherwood Brothers Incorporated, in the 20,000 to 25,000 account number group, it would be utterly impossible to operate with reduced reserves in the higher K factors without inviting trouble in our ability to deliver those accounts which should be delivered. In other words, the question of size of reserve is not one, in our opinion, having to do with greater safety for the high K factor group than is provided for accounts in a lower classification. A well conceived and executed degree day system does not raise any question regarding "running out of oil." It is agreed that human factors will, in very isolated instances, result in a miscalculation or the misfiling of a card, thereby causing a customer run-out.

Thousand Deliveries a Day

Fueloil deliveries, which during the heavy part of the heating season average about 1,050 deliveries per day, are scheduled twice a week, deliveries to be made on Monday, Tuesday and Wednesday being withdrawn from the degree day file on the previous Thursday, and deliveries to be made on Thursday, Friday and Saturday being withdrawn from the files on the previous Tuesday. Temperature data for the first three days of the week is secured from the weather bureau and all fueloil control cards falling into the degree days encompassed by the three-day temperature forecast are withdrawn from our degree day files and are run up by street address. Included in deliveries for Monday are all stops where the K factor is 2.4 and less. The number of stops involved in this group of K factors is considerably less than the 1,050 to be scheduled. As a consequence the number of additional cards to provide 1,050 stops are taken from the group of K factors 3.5 and up. Tuesday's work is scheduled to include all K factors in the 2.5 to 2.9 group, plus a sufficient number of the 3.5 and up K factor group to provide 1,050 deliveries. The remainder of the cards is scheduled for Wednesday and includes only stops in the 3.5 and up K factor group.

K affects Day of Week

Under this method the largest delivery, on a theoretical basis, occurs in the 3.5 and up K factor group which is delivered on Wednesday instead of on Monday when actually due on a degree day basis. The smallest delivery occurs in the group of 2.4 and under K factors where deliveries are made on Monday when the actual degree day accumulation would indicate a delivery on Wednesday.

In this manner we take advantage of all the "geography" possible and at the same time see to it that those accounts which are delivered on any one of the three days involved do not run any chances of being out of oil.

In setting up the day's work as outlined above care is exercised to prevent the splitting of stops on the same street when withdrawing cards from the 3.5 and up K factor group. Some individual treatment was necessary when this system was instituted to take care of those situations where there was a great disparity in rates of consumption on the same street.

In actual practice severe winter weather and extraordinarily low temperatures have resulted in our being as many as 2,000 stops behind on a degree day basis but never yet have we encountered a situation of this type which could not easily be overcome. Had we been operating on the theory that a smaller reserve should be utilized in connection with larger K factors this operation would have proved a dismal failure.

There are frequent occasions in this locality when the daily accumulation of degree days far exceeds the normal of 30 degree days per calendar day. Because of our large account structure

each degree day in excess of 30 degree days produces an additional delivery load of 30 stops. It is plain, therefore, that an accumulation of, say 50 degree days in a calendar day, or 20 more than normal, with the attendant 600 extra stops involved in this excess of degree days, would prove far more than could be handled by our delivery facilities without incurring severe penalties in the shape of excess overtime pay. We do not staff our Delivery Department to take care of anything but normal degree days and rely on our ability to "pull ahead" or "hold back" the deliveries so that the load on our Delivery Department is more or less constant. Too much overtime produces serious repercussions and eventually leads to the breaking down physically of a goodly number of the drivers.

In line with the general thinking now going on in the fueloil marketing business, as evidenced by various excellent articles appearing in FUELOIL & OIL HEAT, there has been a general digression from tne old feeling that the average size of deliveries should be the controlling factor in measuring the efficiency of the fuel oil Delivery Department. The first and foremost controlling factor in setting up deliveries should be, in our opinion, customer satisfaction. We have found no evidence of any dissatisfaction on the part of our customers, who receive their oil automatically, where the average delivery in the high K factor group does not exceed 220 gallons. As a matter of fact our system prevents a very considerable number of telephone calls because all stops on the same street are delivered the same day and we do not receive telephone calls from one customer inquiring as to the reason the people across the street or in the next block received their oil but no oil was delivered to the inquirer's residence.

Viewing tne situation from a broad standpoint, the inclusion of the greatest possible "geography" in addition to degree day deliveries produces a very smooth operation from a company standpoint and fosters and cultivates customer good will. This method also contributes, very definitely, to increased efficiency in the Delivery Department by reducing miles per stop, minutes per stop, and increasing gallons delivered per hour and per mile.

Problem with twin Tanks

HERE IS A PROBLEM in which a junior serviceman found the pump airbound. Having had a number of startups after dry-tank recently, he was not surprised to have to vent the pump. He took no trouble to check the oil level; in fact, since the pump vented easily, he did not even notice that there were two tanks.

Three days later (the job was on summer operation) there was a repeat call. The same serviceman was sent, and this time he was surprised. The pump was airbound again, and had to be vented. This time he checked the oil level. His stick showed 9 inches. He noted that this was well above the pump, an underslung mounting, close to the floor.

Realizing that air could not possibly get into a pump under this condition unless there was stoppage in the line, causing restriction, he decided to put his vacuum gauge on the unit. The fact that the oil had flowed freely when he vented the pump made him doubtful. His doubt was confirmed when he got a zero reading on the gauge with the pump operating.

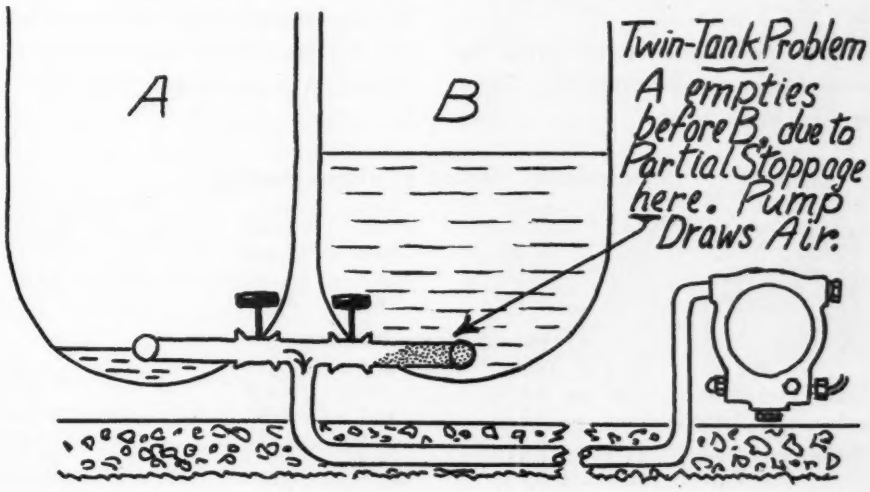
Suddenly something clicked in his cranium, sending him back to the twin tanks. He had previously had some notion to check the level in the other tank, but he had dismissed the idea as absurd, especially on seeing that the upper plugs were solidly made up in their tappings, and would be hard to remove. The fill to the second tank was of the approved crossover type, and the installer had taken no chances on leaks while filling.

With the aid of a two-foot pipe wrench Junior removed one of the plugs. He stuck his rule into the tank and found that there were only three inches of oil, as against the nine in the first tank. This also was puzzling; with three inches the supply line out of the tank was covered with oil; why should the pump have become airbound?

His next step was to close the valve at the outlet of the tank with the low oil level. This produced a quick change on the vacuum gauge. Its needle began to rise, leveling off at 8 inches. Quick reasoning pointed out that there was partial stoppage in the line from the high-level tank. Full stoppage would have caused a higher indication.

This answered his previous question. Since the stoppage was only partial, oil had crept through the block during the interval between the time the burner stopped and the time he arrived on the job, an overnight shutdown of 16 hours or more. Thus the oil in the free line had made it easy for him to vent the pump. This solved the problem, except for what to do about it.

He opened the fittings on the burner side of the supply-line valves, and found them clear. The stoppage was therefore between the tank with the high level and its shut-off valve. This would be a difficult place to work, with a 9-inch head of oil. He decided the job could best be done with the tank



empty. The only question left was: Would the burner be able to pump the tank dry by itself?

The answer to this question also was a matter of reasoning. The pump was operating right now, drawing oil through the stoppage at an 8-inch pull. It should be able to go on doing this indefinitely, if no air were to be drawn in. He tightened the valve packing nuts, the tubing fittings, and checked especially that little cap over the regulating screw. Leaving the low-tank valve closed he left the job confident that there would be no further pumping problem on that job until the tank was dry. Not having any easy way to test the shaft seal for leaks he decided to leave that possibility to fate.

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Indianapolis Survey shows Homeowners who use Fueloil

A SURVEY of the Indianapolis Metropolitan Market, conducted by *The Indianapolis Star* and *The Indianapolis News,* has revealed that better than 30% of the homeowners who have central heating use oil as a fuel. This 1951 Consumer Analysis was conducted in the territory that embraces Marion County — the Indianapolis Metropolitan city zone—plus the 44 surrounding counties within a radius of 100 miles.

Of the 170,512 families in the area, 113,902 own their own homes and 94,872 of these owner families have central heating, with 31.2%, or 26,872 families using oil for central heating. Coal for central heating was reported by 53.5%, or 54,223 families; coke by 8.3%, or 7,844 families; gas by 7%, or 5,933 families.

The following tabulation shows the answers secured to the question, "How is your home heated?":

Indianapolis Method of Home Heating

	Owner Families		*Renter Families*		*Total Families*	
	Percent	*Number*	*Percent*	*Number*	*Percent*	*Number*
Central furnace	83.3	94,873	64.8	36,694	77.2	131,567
Room heater	13.5	17,665	28.5	16,165	19.8	33,830
Other	1.2	1,364	6.7	3,751	3.0	5,115
Type of Home Heating						
Hot air	77.4	88,121	45.2	25,577	66.7	113,698
Hot water	5.2	5,934	6.7	3,819	5.7	9,753
Steam	2.2	2,524	15.3	8,662	6.6	11,186
City heat	0.2	340	3.4	1,910	1.3	2,250
Individual stoves	14.9	16,983	29.4	16,642	19.7	33,625
Total	100.0	113,902	100.0	56,610	100.0	170,512

Study shows Fuel used in Greater Washington

THE 1951 Consumer Analysis, conducted by the *Washington Star,* surveyed the Greater Washington area, including the District of Columbia, all of Arlington County and Alexandria City in Virginia, parts of Montgomery and Prince George Counties in Maryland. Questionnaires were mailed to 5,000 families and individuals who do their own buying and the returns projected on the basis of the 357,670 families in the area.

From questionnaires returned from December 2, 1950 to January 6, 1951, it was determined that more people heat their homes with oil than any other fuel, 41.0% or 146,645 families. Coal or coke is used for heating by 31.5% or 112,666 families, with gas third as a heating fuel, 25.9% or 92,636 families. Two-tenths of 1%, or 715 families, answered that they had steam, radiant heat, wood or central heating systems, but did not specify which fuel they burned. A total of 6,438 families, 1.8% of the total, replied that they did not know what fuel was used.

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Utica Oil Heating Corp. repeats bidding Contest

AN UNUSUAL BIDDING CONTEST like that of last year was conducted by Utica Oil Heating Corp., Utica, N. Y., as a means of stimulating interest in oilheating equipment and to provide the firm with a list of good prospects. The four highest bidders in the contest received their choice of two well-known oilburners which were completely installed at the price each had bid for installation. The contracts included an unconditional guarantee of parts and one full year of service.

Contest blanks were provided at the Utica Oil Heating Corporation's display at the Utica Better Homes Exposition and also were carried in newspaper advertisements used to promote the event. The contest was extended to include the surrounding counties of Herkimer, Oneida and Madison, and anyone was eligible to enter.

❖

Oil continues Lead for Seattle home Heating

OF 175,789 HOMES surveyed in the 1951 Consumer Analysis of the Greater Seattle Market, 60% are heated with oil, 11.3% use handfired or stoker coal, 2.8% use gas and 1.7% are heated with wood furnaces. Oilfired space heaters are used in 18%, or 31,607 of the homes, coal space heaters warm 3.5% or 6,188 of the homes, gas space heaters were reported in 0.8% or 1,441 of the homes and electric space heaters in 1.4% or 2,426 homes.

Oil for central heating showed a growth from 53% in 1949 and 56.1% last year, while handfired and stoker furnaces declined from 15.9% in 1949, 13.7% in 1950. Gas remained about the same, 2.9% having been reported in 1949 for central heating and wood furnaces showed a drop from 2.3%.

The table shows the number of central heating installations using the fuels shown by numbers for the last two years as reported in *The Seattle Times* survey:

	1951	*1950*
Oil	105,579	98,577
Handfired coal	9,844	13,538
Stoker coal	10,020	10,542
Gas	4,852	4,442
Wood	2,953	3,385

❖

Harry William McHose has joined the staff of the Department of Information, American Petroleum Institute, New York 20, N. Y., as editorial director, succeeding Joseph H. Mader, resigned. He will be in charge of the preparation of informational booklets, leaflets, pamphlets and other materials produced in the headquarters office of the Oil Industry Information Committee. Before joining the Institute, Mr. McHose operated his own public relations firm in New York.

Gib Morgan - Wildcatter

"Dusters," post Holes and how He earned the Nickname, in the Words of O.I.I.C.

WIDESPREAD USE by oil men of the words "wildcat" and "wildcatter" to designate, respectively, an exploratory well and the man who drills it, has puzzled historians for almost three generations. Some say the exploratory driller usually works in territory so rugged and primitive that only the real four-legged wildcat (Felis Catus) can live there. Others suggest that, since new fields discovered by exploratory drilling have succeeded in boosting America's proved reserves of petroleum to the record high of 29½ billion barrels, oil men have simply adopted the old railway term for an extra locomotive used to boost heavy freight trains up steep grades. A few individuals imply that, since only one out of every nine strict wildcats finds oil, the phrase may have to do with games of chance!

Finally, there are those who hold that, because an exploratory driller and his four-footed namesake take orders from no one, show lots of initiative and know-how, and have short tempers when (1) the former brings in one dry hole after another at the whopping cost of hundreds of thousands of dollars each, and (2) the latter is not eating regularly either, the nickname is both apt and obvious.

While scientists and linguists puzzle over the matter, the Texas Folk-Lore Society and Author Moady C. Boatwright have come up with an explanation that is worthy of Davy Crockett's yarnspinning. It now appears that the term "wildcat" was first applied to Gib Morgan, the famous driller and tall-tale-teller of the early days of oil.

It all began when Gib was trying his hand at exploratory drilling down in Texas in the early '90's. That was before the great Spindletop strike and business wasn't so good. In fact, Gib said it was downright mediocre. Time after time he would drill a dry hole in likely territory while his biggest rival, Bill McGee, would drill half a mile away and hit a rich new field.

Post Holes for Ranchers

Gib had lost three fortunes and was well down on his fourth and last one when he hit on that idea we told you about before: He pulled up thousands of his "dusters," sawed them into post holes and sold them to ranchers who were just beginning to fence their cattle ranges. That revenue helped some but his luck didn't improve even though he imported a new-fangled geologist from New York to help him instead of spinning his hat into the air and drilling where it fell, the way he had used to do back home in Pennsylvania. He got poorer and poorer until, to meet his payroll, he had to check out of his boarding house and go live with his sister-in-law, Sally.

This Sally was quite a character, just like all the Morgan in-laws had to be to live with the Morgans. She had been a school teacher, so she was very strict. She had come down to Texas to sell fence posts and barbed wire. She was so stingy she ate only osage oranges and drank only sassafras tea. They made her so tough the only way she could get any real exercise was to walk a stretch of barbed wire fence in her bare feet with a spitting, scratching Felis Catus under each arm.

Sally took her exercise *by walking a stretch of barbed wire fence in her bare feet with a spitting, scratching Felis Catus under each arm.*

"Time after time *Gib would drill a dry hole in likely territory . . .*"

Naturally the oil men in the neighborhood stopped to watch when Sally took her morning constitutional. And, just as naturally they began to speak of Gib as "the man who boards with the strict wildcatter." Pretty soon folks who didn't know him got the idea that Gib himself was the wildcatter.

No telling how far this sort of thing would have gone, but Gib finally got so thin on Sally's diet that a rancher figured *he* was a fence post and started to load him on a truck. That really was the last straw. Morgan sold his drilling equipment to McGee and used the proceeds to buy a good French restaurant in New Orleans. They say he gained a hundred and five pounds before he returned to Texas and the oil fields.

Gib got so thin *on a diet of osage oranges and sassafras tea that a rancher figured he was a fence post and started to load him on a truck.*

OPS suggests Subsidy instead of eastern price Increase

ACTIONS OF independent primary suppliers to seek increases in Eastern Seaboard prices for No. 2 fueloil and kerosene to offset higher tanker rates on F.O.B. Gulf purchases have drawn from the Office of Price Stabilization a suggestion of a government subsidy on such purchases, it is reported in the August 10 "Weekly Letter" of the Atlantic Coast Oil Conference, Inc., New York 17, N. Y.

The Conference reports OPS opposes price advances, which would raise the price for oil bought on a delivered basis as well as that brought in by company-owned tankers, but that it is concerned over possible East Coast shortages if the supply of F.O.B. Gulf oil, estimated at 16% of demand, is not maintained. Another factor is that tanker rates are seasonal and subject to fluctuation, and it is now predicted by U. S. Maritime authorities that there will be a shortage of tankers during the high-consuming season and that rates may go as high as 350% to 400% above USMC, compared with an all-time high of 248% in 1948.

The President is empowered in the new National Production Act to authorize subsidies in such situations and a general increase in the price of No. 2 fueloil would cost the consumer many times the amount that the Government would be obligated to pay in subsidies.

The Conference reports a similar situation in the case of many barge buyers along the Erie Canal, with the result that the New York District Office of OPS is collecting information on delivered costs and selling prices before the New York Harbor price increase last October, after the increase and at the present time. When these data have been collected they are to be analyzed and rulings made for those buyers who have applied for relief.

❖

Oil, forced warm Air gain in Appleton, Wis.

GAINS IN THE USE OF OIL as a heating fuel, almost entirely at the expense of coal, and an increase in the use of forced hot air systems, with a corresponding drop in the number of gravity air systems, highlighted results of the 1951 Consumer Buying Habit Study conducted by the *Appleton Post-Crescent* in the Appleton, Wis., trading zone.

In 1949, 30% of the homes in the area were heated with oil, increasing to 38.7% in 1950 and 42.7% this year. At the same time the use of coal as a heating fuel dropped from 66.5% in 1949 to 58.6% in 1950 and 53.1% this year. During the same years gas increased from 0.1% to 3.1%, coke dropped off from 3.3% to 1.4% and wood moved from 0.1% to 0.2%.

Gravity hot air heating, the survey revealed, still was the most widely used type of heating, being 48.5% of the total, but showing a drop from 64.3% in 1949 and 62.6% last year. Forced warm air heat, on the other hand, had been used by 18.3% of the homes in 1949, increasing to 22.6% last year and jumping to 36.2% in 1951. Hot water heat during the same three years dropped from 9.6% to 6.9% of the total, steam increased from 0.8% to 1.6% and space heaters declined slightly from 5.6% to 5.4%. Radiant heating, not reported in 1949, increased from 0.9% last year to 1.4%.

The tabulation lists the type of fuel used and types of heating systems in numbers, reflecting the percentages referred to above.

	1951	*1950*	*1949*
Type of Fuel Used			
Coal	12,168	12,758	14,212
Oil	9,786	8,420	6,420
Gas, bot. & nat.	710	36	16
Coke	320	677	705
Wood	45	18	16
Type of Heating System			
Gravity warm air	11,142	13,635	13,739
Forced warm air	8,295	4,924	3,903
Hot water	1,581	1,684	2,046
Space heater	1,283	1,190	1,192
Steam	366	238	166
Radiant	320	201	...

❖

E. Russell Meyer has been named to the newly-created position of manager of quality, Eureka Williams Corp., Bloomington, Ill. In addition to heading quality control, he will be in charge of the inspection department and test engineering. Mr. Meyer previously was assistant chief inspector, Caterpillar Tractor Co. and is a past chairman of the Illinois section, American Society for Quality Control..

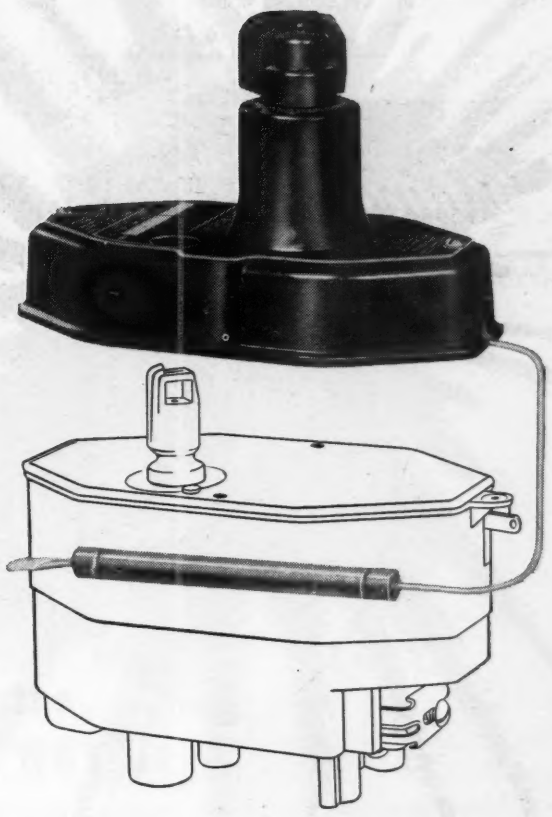
"Why yes, I can give you references -- the E-Z Credit Co., the Westside Finance Co., the Jiffy Personal Loan Co., the ---"

"Why, no, honey... you're no fatter than you were twenty years ago - except in the face and figure"

demand

DETROIT CERTIFIED CONTROLS

Now You Can *Add-up* Big, New profits with this Remarkable, New *Add-on* Control!



DETROIT'S outstanding, new CRC-239-MP Flame-Modulator Add-on Control is a sure-fire bet to ring up new sales, new profits for you! Entirely mechanical in operation and designed for quick and easy installation on the **DETROIT** CRC-239 Manual Float Valve, this remarkable control provides the user with complete, low cost thermostatic control of his heating unit. A large, easily adjusted dial permits the selection of any desired temperature and provides modulation of the flame of gravity type oil burners depending upon the heating requirements of the room. A natural for both new and replacement sales, the CRC-239-MP requires no electrical connections, thereby eliminating the time and expense of wiring. Place your order with your **DETROIT** Wholesaler today and cash in on this great new profit-winning **DETROIT** product!

Write for Bulletin No. 237.

DETROIT CRC-239-MP
FLAME-MODULATOR ADD-ON CONTROL

- ★ Provides Complete Thermostatic Control
- ★ Entirely Mechanical—No Wiring Needed
- ★ Easily Installed
- ★ Low Cost

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Division of American Radiator & Standard Sanitary corporation
RAILWAY & ENGINEERING SPECIALTIES, LTD.
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DETROIT HEATING AND REFRIGERATION CONTROLS • ENGINE SAFETY CONTROLS • FLOAT VALVES AND OIL BURNER EQUIPMENT • **DETROIT** EXPANSION VALVES AND REFRIGERATION ACCESSORIES • STATIONARY AND LOCOMOTIVE LUBRICATORS

Serving home and industry AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • ROSS HEATER • TONAWANDA IRON

Readers' Forum

RAY OIL BURNER CO.
San Francisco 12, California

Editor:

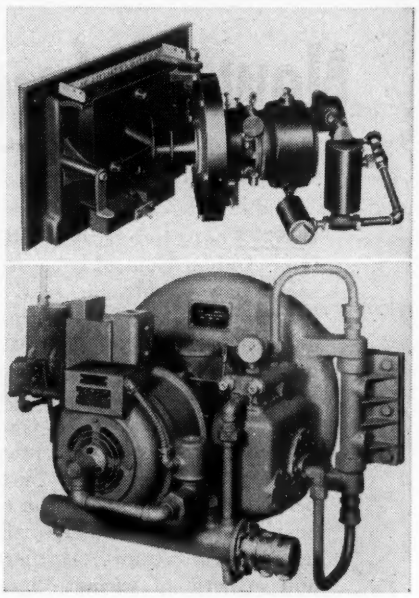
The introduction of an Industrial and Commercial Section into the pages of FUELOIL & OIL HEAT should meet with a great deal of interest on the part of its present readers and should broaden the range of its subscribers to include many dealers and users of industrial and large commercial equipment. We wish the Editors complete success in this project.

The article in the July issue of FUEL-OIL & OIL HEAT entitled "We Need Better Equipment" is a challenge to the manufacturers of commercial and industrial equipment. However, exception should be taken to the broad statement implying that no progress, except for details, has been made in the improvement of the rotary burner for the last twenty years.

It is true that the principle of the rotary burner, that is, blasting into fine particles the thin film of oil as it leaves the edge of a revolving cup, by means of a high velocity air stream remains unchanged. The same might be said of the principles of the pressure atomizing burner, the mechanical atomizing or the steam atomizing burner. It is in the development and refinement of the basic principles that progress is made.

There probably is no major manufacturer of rotary burner equipment who is not thoroughly familiar with the increasing demands for greater capacity and dependability of operation and for more efficient automatic performance with fuels which appear to become increasingly more difficult to burn. Furthermore, all undoubtedly are carrying on development programs to meet these requirements in ways that are best suited to the equipment involved.

Over the past few years development has been made and is now in progress toward better combustion by



Contrast *in construction and details between an automatic burner of the 20's (top) and a modern 700 bhp unit (bottom). Both are made by Ray Oil Burner Co.*

improvement of the primary air and nozzle system, through more extensive use of the wind box and annular secondary air admission and in maintaining better control over oil flow within the atomizing cup. Improvements have been made in oil flow control valves, providing constant flow rates under modulated operation and capable of accurate control of oil having viscosi-

Eddington
Oil Burner Filters

Why they're extra-important to YOU . . . today

You're due to be busier in the days ahead. So more than ever you'll want to depend on Eddington products. Eddington Filters, for instance, are *proved* reducers of service interruptions. They're big in filter area, do a thorough filtering job, need infrequent cartridge change. They'll do their part to keep your service up to par, no matter what's ahead.

Want information on any of the items listed? Just drop us a postal; you'll get a quick reply.

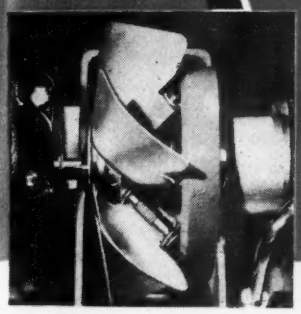
Check your Eddington needs here:

- ☐ FILTERS
- ☐ NOZZLES
- ☐ VALVES
- ☐ STABILIZERS & AIR CONES
- ☐ STRAINERS
- ☐ ADAPTORS
- ☐ INSPECTION MIRRORS
- ☐ SERVICEMAN'S NOZZLE KITS

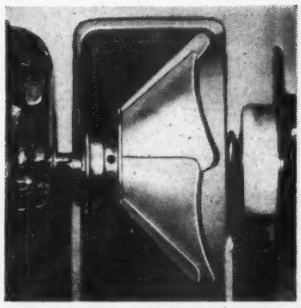
EDDINGTON METAL SPECIALTY COMPANY
1050 Czarnecki Street, Eddington, Pa.

ONLY Air Seel

CONSERVES THE HEAT IT MAKES!



AIR-SEEL fan in "on" position.



AIR-SEEL fan in "off" position.

By "closing the door" on heat-wasting cold air during "off" period, Silent Glow's AIR-SEEL saves heat . . . fuel . . . and fuel dollars. The patented AIR-SEEL fan is scientifically designed with blades that automatically fold flat against each other when burner stops. This exclusive feature "seals" the heat within the heating plant . . . and, unlike ordinary burners, prevents the passage of cold basement air through the intake into the system.

Important, too, the AIR-SEEL fan is equipped with micrometer flame control for adjustment of both velocity and amount of air to fit varying fire-box conditions. Another fuel-economy feature!

That all adds up to a "dollar-saving" story that's easy to tell, easy to sell . . . and is a business-building opportunity you can't afford to miss.

Sell AIR-SEEL and you're sure of more profitable oil burner sales!

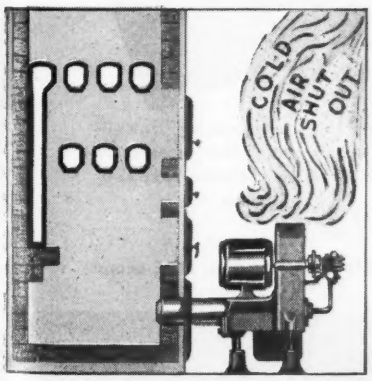


Illustration above shows how AIR-SEEL prevents intake of cold air.

GET THE FACTS TODAY!

Those Who Know Choose
SILENT GLOW OIL BURNERS

To: THE SILENT GLOW OIL BURNER CORP.
850 Windsor Street, Hartford 5, Connecticut
1500 So. Western Ave., Chicago 8, Illinois

Please send me complete information about AIR-SEEL

Name _____

Company _____

Street _____

City _____ State _____

ties varying over the entire pumping range. In addition, use of the two-stage pump and reservoir, integral with the burner, and the viscosity valve, has largely eliminated the necessity of a separate pump-set, and accurate control over temperature is not a prerequisite to reliable performance.

In the field of auxiliary equipment, it should be pointed out that the increased use of fully automatic burners has demanded and justified the development of simplified automatic draft controls and combustion safety controls of various types to meet a wide range of conditions. The increasing availability of heavy residual oil has resulted in more extensive and reliable oil preparation systems. The electric pipe line heating method has been the answer to many problems where long shut-down periods are encountered.

In general, the industrial and commercial burner industry and the control and auxiliary equipment manufacturers are dependent upon each other, and future progress in the combustion field will be, to a great extent, a function of the cooperation between these two branches of the industry. It is certain that future pages of this Industrial and Commercial Section will carry discussions of rotary burner problems which in themselves will indicate the progress being made by the industry.

R. B. PLASS, *Chief Engineer*

❖

W. A. *Matheson* has been elected vice-president, American Bildrok Co., Chicago, Ill., manufacturers of lightweight aggregate building materials. For the past year Mr. Matheson has been director of dealers relations for the company and before that was associated for many years with leading firms in the oilheating field. He formerly was president of Williams Oil-O-Matic Heating Corp., later became its executive vice-president when it merged with the Eureka Vacuum Cleaner Co. and is presently a member of the board of directors, Eureka Williams Corp. He was twice president of the Oil-Heat Institute of America and authored a best selling sales book, "The Selling Man."

Industry Groups

Activities of local and national industry associations are reported monthly in this department. Secretaries are invited to send reports of their Group's activities to reach the editor by the 18th.

Extend Deadline for ordering OHI Calendars

THE DEADLINE for ordering copies of the 1952 calendar, available from the Distribution Division, Oil-Heat Institute of America, Inc., New York 16, N. Y., has been extended beyond the date originally announced, according to Fred Burroughs, national secretary of the Division. Shortly after August 15, orders for 25,000 calendars had been received, just halfway to the goal of 50,000 that has been set. Mr. Burroughs also revealed that five manufacturer members of the Institute have tied in with promoting sales of the calendars and have publicized them to their dealers and urged them to use them.

It's the LOW DOWN DIRT trapped by WILSON'S HAIR FILTERS that GUARANTEES LONGER LIFE

In Wilson *Hair* Filters the entire dust-holding capacity is completely utilized. This means, *no surface dust stopping only,* but Full-Depth Dust Trapping at its best . . . and many extra months of filter life.

The *reasons* are so simple:

1. The hair media in Wilson *Hair* Filters act in the same manner as Mother Nature's proven way of filtering the air you breathe. It's the *hair* that cleans the air . . . more easily, more effectively, more economically.
2. The multi-directional distribution of the hair in Wilson *Hair* Filters literally invites all dust and dirt to come in and be trapped throughout the entire filter interior.
3. Most brands of air filters require oiling on their inlet surfaces. This stops dust prematurely, loads up the incoming air side and materially shortens filter life.

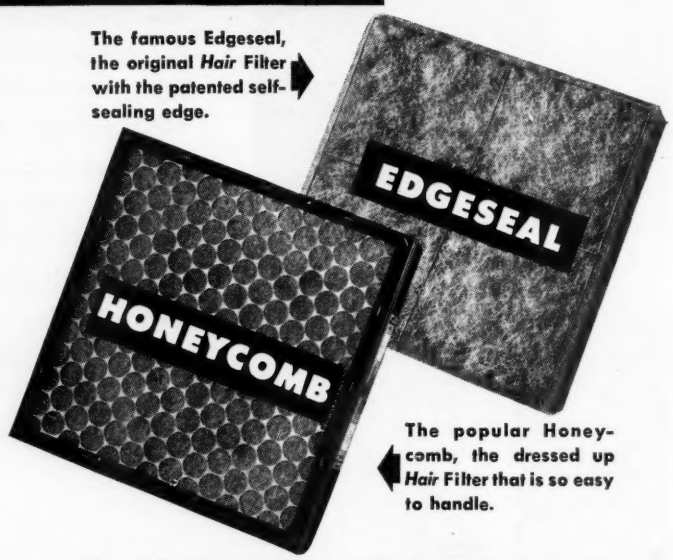
Wilson Hair Filters are not oiled on the inlet side. Instead, they receive an even distribution of mineral oil *on their outlet surface,* which:

(a) augments the already amazing ability of the hair itself, to catch and hold dust, and—

(b) builds an impregnable barrier which halts dust and dirt after reaching the furthermost practicable penetration point.

WILSON & CO., INC.
(Air Filter Division) 4100 South Ashland Ave., Chicago 9, Ill.

Wilson Hair Filters are another quality product of Wilson & Co., world-famous for meat products, sports equipment, pharmaceuticals, hair products, etc.



The famous Edgeseal, the original *Hair* Filter with the patented self-sealing edge.

The popular Honeycomb, the dressed up *Hair* Filter that is so easy to handle.

Save delay. Save dollars. Save doubt. Send for FREE sample with details and prices.

MEMBER INDOOR COMFORT

WILSON'S HAIR FILTER

WILSON & CO. INC.

Approved for GAS!

Approved for OIL!

Luxaire®

HEATING AND AIR CONDITIONING UNITS

AVOID lost sales!

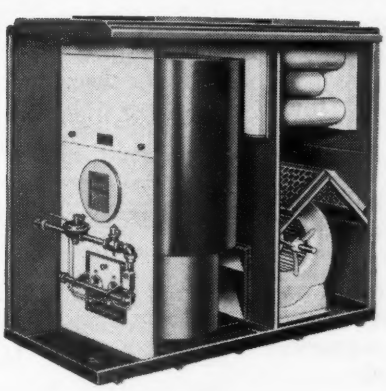
AVOID delays!

AVOID frozen or slow moving inventories with *Luxaire!*

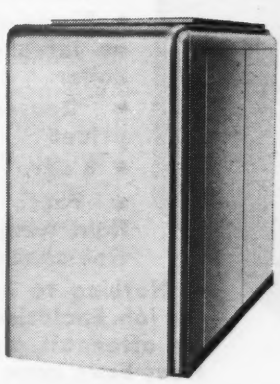
YOU can be independent of fuels with most Luxaire Furnaces and Air Conditioning Units because they have been designed to burn either Gas or Oil with equal efficiency! Luxaire Units with Luxaire Gas Burners carry the A. G. A. seal of approval . . . The same Luxaire Furnaces and Air Conditioning Units with Underwriters Laboratories approved Luxaire Oil Burners are equally as efficient as the Gas Fired Units!

. . . INSTALL the furnace NOW without the burner!

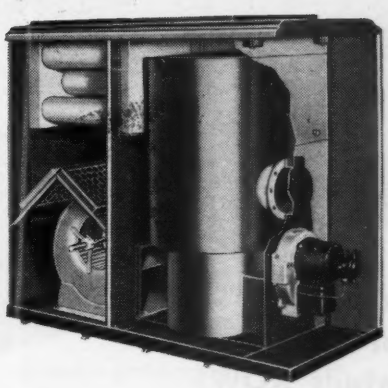
Wait until cold weather arrives before you decide on Gas or Oil. OR—INSTALL OIL *NOW* and CHANGE TO GAS anytime in the future—OR INSTALL GAS *NOW*, and CHANGE TO OIL anytime in the future.



The Luxaire Gas Fired basement air conditioning unit.



Front view of Luxaire basement air conditioning unit.



The Luxaire Oil Fired basement air conditioning unit.

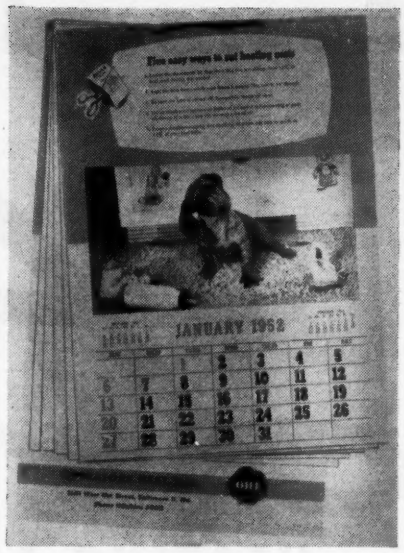
THE C. A. OLSEN MANUFACTURING COMPANY • • ELYRIA, OHIO

Luxaire HEATING & AIR CONDITIONING UNITS

fueloil & oilheat

Minimum orders for the 6 sheet "flop-over" type calendar are for 250 copies, available to members at 22¢ each, up to 500 copies. In quantities from 501 to 1,000 the cost is 20¢ each; from 1,001 to 2,000, 18¢ each and over 2,000, 16¢ each. Non-members of the Distribution Division can purchase calendars at a premium of 2¢ each above these prices, but if the non-member elects to join his local chapter within a reasonable time after the purchase, then he receives credit for the difference between the two prices and this is applied against his membership dues. Mr. Burroughs reports some success with this plan in increasing Distribution Division membership and feels that more members will be added as the campaign continues.

Credit is given to H. D. Bissell, director of merchandising, Minneapolis-Honeywell Regulator Co., who made the original layout and design for the calendar, and to his company for underwriting the preparation costs. Mr. Bissell designed the calendar so that each month features an illustration and a message that "sells" automatic oilheating and the service that local dealers render. The calendars are printed in two colors, carry the OHI seal and a dealer imprint, consisting of company name, address and telephone number.



First page *of the calendar available from the Distribution Division, Oil-Heat Institute of America, Inc. Since the original design was worked out, improvements have been added so that the illustrations have been changed in a way that measurably increases their effectiveness.*

Orders should be sent without delay to the Distribution Division at 6 East 39th St., New York 16, N. Y.

New England Wholesalers to meet in New Hampshire

MEMBERS of the Wholesale Heating and Plumbing Trades of New England are to gather at "The Balsams," Dixville Notch, N. H. from September 14 to 17 for their annual convention. A number of athletic tournaments are included in the program of events.

I-B-R issues Manual on Panel Heating

INSTALLATION GUIDE NO. 6, "Panel heating for small structures," has been published by the Institute of Boiler and Radiator Manufacturers, New York, N. Y., intended for designing floor and ceiling panel heating systems using forced circulation hot water. Guide No. 6 includes sections on recommended installation practice, calculation and design and heat loss

MANVILLE

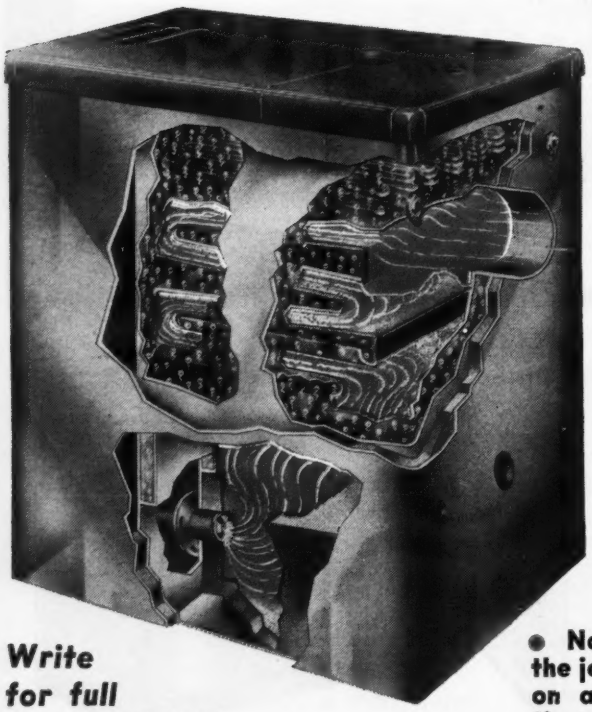
NON-PULSATING
THERMO-FLO
TUBELESS — NO TUBES TO CLEAN OR REPLACE

AN OUTSTANDING ADVANCE IN STEEL BOILER DESIGN

guaranteed pulsation-free

*Oil or gas firing

High capacity domestic hot water output coil built-in at factory. Many coil sizes available.



5 serpentine flue passes insure high absorption of heat and low stack temperature.

- Guaranteed ratings with any good standard make burner
- Round stack outlet as integral part of boiler
- Reasonably low priced
- 8 sizes
- Factory built-in light weight combustion chamber
- Nothing to assemble on the job. Enclosing jacket put on after all pipe connections have been made

Write for full details NOW!

*Convertible to coal in emergency

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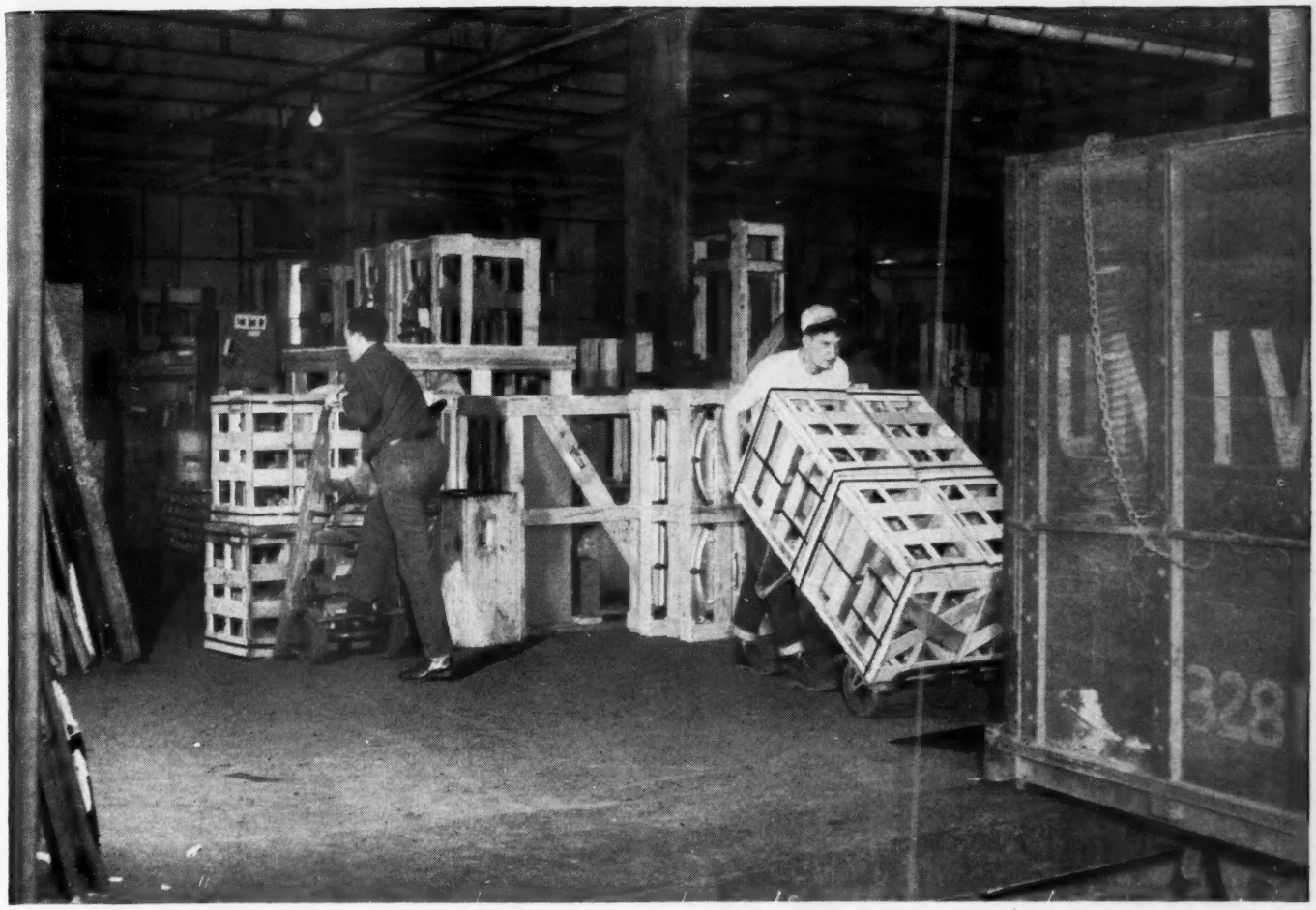
FACTORY & OFFICE
HACKETTSTOWN, N. J.



"SM* Helps Us Meet Shipping Schedules"

says H. H. Baxter of Iron Fireman

"Meeting shipping schedules is important to us," says H. H. Baxter, of Iron Fireman, Cleveland, Ohio, "and General Electric's Standardized Manufacture program on ignition transformers is an important factor in our delivery picture. In fact, SM ignition transformers have solved one of our major problems—the problem of production delays due to periods of transformer shortages. By using SM transformers, we find we get improved delivery, and we are able to produce and ship on schedule."

General Electric's program of Standardized Manufacture ignition transformers is designed to gear transformer output to the requirements of the oil-burner industry. Because it decreases the number of transformer models produced by General Electric, it permits substantial increases in transformer production. SM improves delivery, improves quality control and improves the price picture for the entire industry.

Learn why 75% of G-E ignition transformer customers use one of the four SM models, and how SM can improve YOUR production picture. Write for bulletin GEA-5599. Address Section 411-92, General Electric Company, Schenectady 5, N. Y.

SM ignition transformers

*Standardized Manufacture

benefits the oil burner industry:

1. More reliable shipping
2. More flexible delivery
3. Greater production
4. Lower Costs

GENERAL ELECTRIC

factors, with tabulations on the hourly Btu requirements for areas and volume, equivalent hourly Btu heat loss for various indoor minus outdoor temperature differences, pump size, pressure head developed by pump and main sizes for iron pipe and copper tube.

Also included is a floor plan for a typical house, details of the boiler, floor box and floor coil installation. Piping plans for both a floor panel system and ceiling panel system are shown, along with drawings illustrating the return main and ceiling coil installation detail.

For simplicity, Guide No. 6 is limited to one size and spacing of pipe or tube, one water temperature for either panel system, with material confined to the use of serpentine coils directly connected to the main, designed as floor panels of ¾" tube or pipe on 12" centers with 120° F. water and ceiling panels of nominal ⅜" tube on 6" centers with 140° F. water .

This latest Guide is an addition to the four others available from the Institute at 60 East 42d St., New York City. Guide No. 6 sells for 50¢ each, and is to be included in the instruction at all of the Schools of Modern Heating.

HOW ABOUT THAT?
I THINK WE SHOULD BUY THIS OIL-BURNER INSTEAD! IT'S ECONOMICAL, QUIET AS A WHISPER AND SHOULD GIVE MANY YEARS OF FINE SERVICE!
HEATING EQUIPMENT CO.
BUT.... ISN'T THIS GAS-BURNER PERFECTLY ADORABLE? IT'S SO CUTE.... I'M IN LOVE WITH IT! LINSEED, I'LL NEVER FORGIVE YOU IF YOU DON'T BUY THIS ONE!
SO LINSEED BOUGHT THE GAS-BURNER... AND WHAT HAPPENED? YOU GUESSED IT!
THE GAS-BURNER WORRIES ME.... THE PRESSURE'S LOW WHEN IT GETS REAL COLD! IT'S YOUR FAULT! YOU KNOW MORE ABOUT THOSE THINGS THAN I DO..... YOU SHOULD'VE INSISTED WE BUY THE OIL-BURNER INSTEAD! LINSEED, I'LL NEVER FORGIVE YOU IF YOU DON'T GET THE OIL-BURNER.... BLA... BLA... BLA....
SEND IN YOUR CARTOON IDEA FOR THIS PAGE! YOU'LL RECEIVE CREDIT AND THE ORIGINAL DRAWING!

NYOHA holds annual Outing and field Day

MORE THAN 200 members and guests enjoyed the annual outing and field day sponsored by the New York Oil Heating Association, Inc., Long Island City 1, N. Y., and held at the Huntington Crescent Club, Huntington, N. Y., on July 26. As in past years the day featured a softball game between teams representing manufacturers and dealers. A conveniently-located oasis enabled the athletes to struggle through a hard fought 7-inning game, with the manufacturers declared the winners.

Other events included an all-day golf tournament, a noon luncheon, barrel roll, golf ball driving contest and egg-toss. The evening banquet witnessed the awarding of prizes for each event, climaxed by the raffling off of a color television receiver. Dan Bierman was chairman of a committee that supervised the arrangements.

Announce Schedule for Schools of Modern Heating

A FULL SCHEDULE of Schools of Modern Heating has been announced by the Institute of Boiler and Radiator Manufacturers, New York 17, N. Y., which commenced with a three-day session at Farmingdale on August 7 to 9. Tuition for the three days is $23, with additional instruction being included on "Panel heating for small structures," based on the newly-published I-B-R Installation Guide No. 6.

Other schools already held and scheduled are:

New Haven, August 14 to 16; Springfield, Mass., August 21 to 23; Grand Rapids, September 11 to 13; Minneapolis, September 18 to 20; Omaha, September 25 to 27; Kansas City, Mo., October 2 to 4; St. Louis, October 9 to 11; Allentown, Pa., October 16 to 18; Poughkeepsie, N. Y., October 30 to November 1; Manchester, N. H., November 7 to 9; Philadelphia, November 13 to 15;

LATEST G-E CONTRIBUTION to the field of automatic warm air heating is the new G-E Automatic *Air-Wall* Register, pictured at right under window. It's truly automatic. The built-in thermostat operates a damper which modulates the flow of warm air to the room to compensate for fireplaces, large glass area and similar factors which otherwise create difficult heating problems.

THIS NEW G-E PACKAGED AIR CONDITIONER (Type FE), left, combined with the G-E Oil Furnace (Type LB) offers year 'round comfort to the home owner—year 'round business to the General Electric dealer. Either unit can be separately installed to fit existing ductwork.

IN THE REPLACEMENT MARKET and in new construction, the compact G-E Oil Boiler (Type LA) has proven outstandingly popular for many years. Major selling feature is famous G-E economy. This G-E advantage results from a unique design which gets more "heat mileage" from every gallon of fuel oil. Six models from 100,000 to 450,000 Btu output per hour.

NATIONAL ADVERTISING in *The Saturday Evening Post* and Sunday Magazines tells millions about G-E Oil Heating Equipment. Complete product literature and sales training are available to G-E dealers and their salesmen.

G-E OIL HEAT

Three reasons stand out for the rapid sales growth of General Electric's Oil Home Heating Equipment—1. good products and *new* products, 2. strong advertising and sales promotion, and 3. a name known and respected by millions.

Thousands upon thousands of home owners throughout the country now enjoy the comfort, convenience and economy benefits of G-E Oil Heating Equipment.

Today the demand for G-E Oil Heating Equipment by builders and home owners is greater than ever before.

G. E.'s "Climate Engineers"...the product planners, the designers and the producers...offer many new developments, such as G-E *Air-Wall* Heating, which gives both radiant and warm air heat, and the G-E year 'round air conditioning system, for automatic summer and winter comfort. These new products open new market horizons for G-E dealers.

The G-E name plus proven customer satisfaction helps G-E dealers build increasingly profitable sales leadership. Complete and up-to-date sales tools are available and consumer acceptance is further assured by the current national advertising program, the biggest in the department's history—aimed to make prospects "look at G. E." before they buy.

And remember that G. E.'s *single responsibility* stands behind *all* G-E Oil Heating Equipment. General Electric Company, Air Conditioning Department, Bloomfield, N. J.

You can put your confidence in—

GENERAL ELECTRIC

Fueloil & oilheat

Paterson, N. J., November 20 to 22; New Bedford, Mass., December 5 to 7; Trenton, N. J., December 11 to 13 and Boston, December 18 to 20.

Distillate Burner Group marks twentieth Year

THE JUNE 20th meeting of the Distillate Burner Manufacturers Association, Lynn, Mass., held at the Toy Town Tavern, Winchendon, marked the 20th year of the group's incorporation. Of the ten original names appearing on the Certificate Incorporation, the following four were present at the meeting: R. M. Sherman, E. T. Isaac, H. H. Morse and J. W. Meyer, Jr. The Automatic Burner Corp., represented by J. H. Hirsch and Lynn Products Co. by R. W. Drown, both original incorporators, were represented by W. G. Chapman and E. C. Leach, respectively.

A short business meeting followed a luncheon, at which President William G. Chapman presided. Messrs. Sherman and Morse were called upon for remarks. Upon the reading of a communication from George Cage, Detroit Lubricator Co., advising of his retirement last June 30, he was elected an honorary member of the Association. Other honorary members present were George Williams and George Brown.

ASME announces Program for Minneapolis Meeting

A PROGRAM of 23 sessions, during which 49 technical papers will be delivered, has been announced by The American Society of Mechanical Engineers, New York 18, N. Y., for its Fall Meeting to be held at the Hotel Radisson, Minneapolis, Minn., September 26 to 28. Papers will cover a variety of fields, including heat transfer, fuels, industrial instruments and regulators, materials handling and petroleum.

A round table discussion on engineering education is scheduled in cooperation with the Minnesota Society for Professional Engineers, for the purpose of bringing together seasoned engineers and recent graduates for informal discussions on topics of professional development. Participating will be young engineers in the Minnesota Section of ASME, hosts for the meeting; Charles E. Doell, Minneapolis superintendent of parks and president-elect of the Professional Society; Hibbard Hill, Northern States Power Co. and Julius M. Nolte, dean of University Extension, University of Minnesota.

Recent developments and new trends in mechanical engineering will be highlighted in the technical program, with inspection trips scheduled to a number of local companies, including Minneapolis-Honeywell Regulator Co.

W. Lyle Borst is chairman of the General Committee of the Minnesota Section for the meeting. Daniel J. Greenwald is vice-chairman, with ten others designated chairmen of special committees.

Washington, D. C. Dealers hold membership Outing

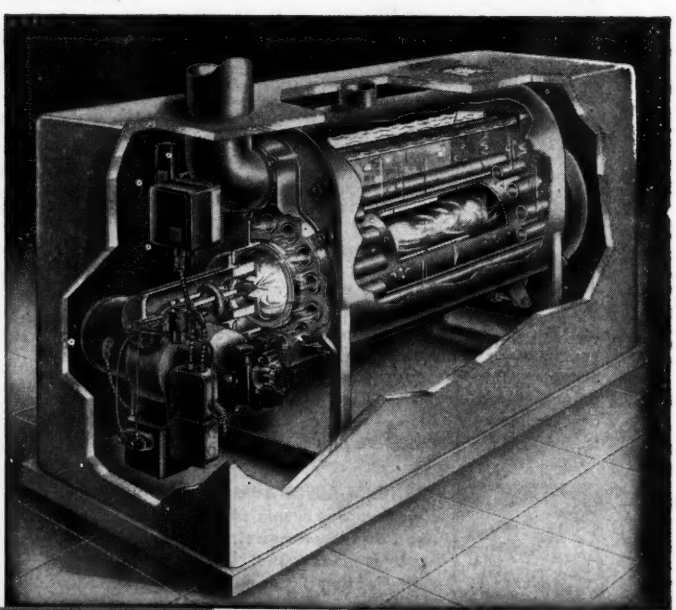
THE SECOND ANNUAL membership outing of the Oil-Heat Institute of Greater Washington, Inc., Washington 1, D. C., took place on August 3 at the Manor Country Club, Norbeck, Mary-

The Bethlehem Crusade-a-therm

THE ONLY PACKAGE UNIT IN THE WORLD WITH THE

C-liminator

. . . an electrical delay switch that forever eliminates smoke on start, plus the electrical solenoid valve, which eliminates smoky shut downs and after-dripping, causing fumes and vapors, are standard equipment on the Bethlehem Crusade-a-therm. The C-liminator was used on the Crusade-a-therm since April, 1950. It was tested and proved in the field one year prior to its introduction.



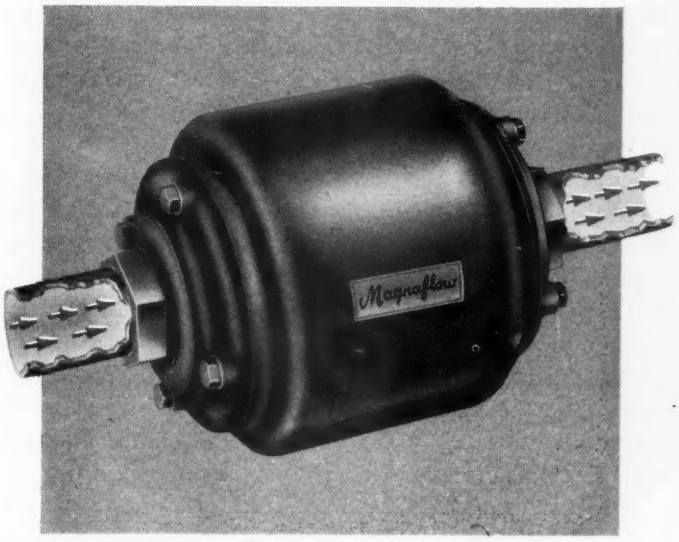
BETHLEHEM FOUNDRY & MACHINE COMPANY
BETHLEHEM, PENNSYLVANIA

A few exclusive Bethlehem Crusade-a-therm territory Franchises are still available. Wire or write immediately for full information.

MODERN PERFORMANCE... STREAMLINED SIMPLICITY

The old gas mantle had its flickering day . . . and went its way.

And a revolutionary development in the heating world has brought a "new day" in pumping aids . . . the MAGNAFLOW CIRCULATOR!



A smooth, one-piece combination of motor and pump has been achieved in the unique MAGNAFLOW CIRCULATOR. Old and knotty problems of installation are banished.

Thousands of installations from coast to coast have demonstrated the dependability and superior features of the Magnaflow unit. Contact your local jobber . . . or write to our office and a nation-wide organization will quickly furnish the desired information.

The ONLY Pump with ALL THESE FEATURES

- **HIGH-HEAD OPERATION.** The Magnaflow unit has demonstrated its excellent capabilities in radiant, baseboard, convector, and standard types of hot-water systems.
- **QUIET.** One-piece construction eliminates the common noises caused by troubles in alignment and couplings.
- **UNIVERSAL MOUNTING.** Versatile . . . can be installed in any position or at any angle directly in the pipe-line.
- **REDUCES STOCK.** The Magnaflow unit is designed to accommodate pipe sizes from ¾" to 2" by merely changing the flange mounting.
- **LESS SERVICE.** Dependable performance is assured by the elimination of stuffing boxes, seals, couplings, alignment problems, etc.
- **HERMETIC DESIGN.** Never requires lubrication and is not affected by dust, dirt, or basement dampness.

MAGNAFLOW PUMP CORPORATION, 45 Astor Place, New York 3, N. Y.

Magnaflow

COAST TO COAST

The Modern CIRCULATOR

land. Activities got under way at 1:00 P.M. and ended with a 7:00 o'clock dinner.

Golf, swimming and card games were enjoyed by some, while others took advantage of the club's large, shaded lawn to sit and chat. Mrs. A. Graham Shields, wife of the Institute's managing director, welcomed wives and guests of members.

❖

David H. Howard, vice-president, Quaker Mfg. Co., Chicago 10, Ill., died on August 15 at the age of 58. He had been associated with the creation and development of the vaporizing oilburner, working with James L. Breese from 1921 on this work. Mr. Howard joined Quaker's Engineering Dept. in 1927 and became vice-president in charge of engineering in 1933.

S. D. Andrews has replaced *Robert Farmer* as branch manager of the Dallas, Texas office, General Controls Co., Glendale, Calif. Mr. Farmer returns to the main office as a factory engineer. Mr. Andrews will be in complete charge of Dallas branch office activities, including sales, engineering and service of the company's complete line of automatic controls.

C. C. Craft has been elected secretary, Iron Fireman Mfg. Co., Cleveland 11, Ohio. He joined the company in 1927 as office manager, became division controller in 1944 and assistant secretary in 1950.

Alfred C. York, director and vice-president, Watson-Stillman Co., Roselle, N. J., died at his home in Elizabeth, on July 22 after a prolonged illness. He joined the company in 1918 as assistant treasurer. In 1941 he was elected vice-president and general sales manager and in 1945 was named to the board of directors, at which time he took full charge of the Distributor Products Division of the company, which he had developed when he was assistant to the president. Mr. York had been a member of the American Petroleum Institute, and participated in the activities of the National Board for the Standardization of Fittings and the Manufacturers Standardization Society of the Valve and Fittings Industry.

M. W. Bowen has been named as general manager of the Certified Furnace Co., Minneapolis, Minn. He has been associated with the heating industry for more than 25 years as a manufacturer, jobber and retailer of furnaces and gas and oilburners.

Russell F. Ekrut has become associated with the Kalamazoo Stove & Furnace Co., Kalamazoo, Mich., in the capacity of general service manager. He was formerly associated with the Whirlpool Corp. as assistant to the director of service.

Paul W. Meyers has been made a distributor of Smithway service station pumps and liquid meters in the greater Cleveland area by the Meter Div., A. O. Smith Corp., Los Angeles, Calif. He will make his headquarters in Mentor, Ohio. Mr. Meyers formerly was district manager of the Chicago office of the Pittsburgh Equitable Meter Div., Rockwell Mfg. Co.

Today especially, if you were to try to carry enough warm-air furnaces so that you could deliver any needed unit from stock, you'd have a back-breaking inventory.

The Armstrong distribution system takes that load off your back, but gives you its benefits . . . *all* of them, without the investment . . . without any financial burden at all. A nearby Armstrong distributor carries your inventory, right in your back-yard. With him in the picture, you can match the largest dealer stock, the best engineering knowledge, the latest installation procedure, the most effective retail sales promotion.

But the line is what counts, you say? Well, have you seen the *three* new oil units Armstrong offers? A new horizontal; a new gravity; a new hi-boy. Added to an already strong oil line . . . with more coming!

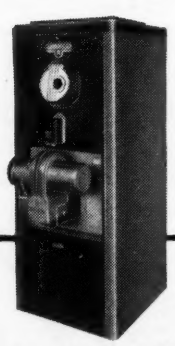
And . . . if gas is bothering you: We have a line for that situation, and a *local* promotion campaign which will turn *lost* sales into *more* sales.

If you want to hear more about the new oil units, check this paragraph, tear out the advertisement and mail it to us with your name and address. If gas is the problem, just check the paragraph above.

ARMSTRONG FURNACE COMPANY

COLUMBUS, OHIO — DES MOINES, IOWA

Please address Dept. FO at our plant nearest you
Warm-Air Furnaces—Oil, Gas, Coal—A Complete Line



The Ideal, Compact OIL FURNACE

Compact size is essential for utility-room installation, but so *are efficiency and attractive appearance.* They're *all* wrapped up in this Armstrong L6-110 Gun-Type Oil Hi-Boy. Powerful *twin* blowers assure effective heat transfer and distribution. First-class construction minimizes service needs. Write for specifications.

This is a shaded pole motor ...and it's worth a second look!

There was a time when shaded pole induction motors were recognized as a dependable, low-cost power source with limitations . . . and the application limitations were well known.

But today advanced designs of shaded pole motors have added new qualities, new versatility.

For example, the motor frame illustrated, FASCO's 3A3 (6-pole, 1000 RPM), can be furnished in ratings up to $^1/_{15}$ h.p. . . . with an overall length, less shaft, of only $3^5/_{16}$". That's compact, inexpensive power.

Other FASCO 6-pole motors, up to ⅛ h.p., are available in *reversible* models (the *only* reversible shaded pole motors).

Multispeed windings are available in many FASCO motors. And *built-in* protection against overheating can be furnished on *any* FASCO motor. Special attention is paid to meeting UL requirements. All this may mean that shaded pole motors hold new interest for you.

FASCO makes a wide range of small motors from $^1/_{500}$ to ⅛ h.p. Most are shaded pole induction motors in 2-pole, 4-pole, and 6-pole speeds.

Let a FASCO engineer visit your plant and study *your* application. Matching the motor to the job requires painstaking development.

Cooperative, careful engineering is typical of FASCO customer service. Maybe it can do something for you. Write and see.

FASCO
INDUSTRIES, INC.
ROCHESTER 2, NEW YORK

COMMERCIAL & INDUSTRIAL oilburning

Design of the industrial Installation

Part II—Combustion Volume needed to develop required boiler Output

by
Kalman Steiner*

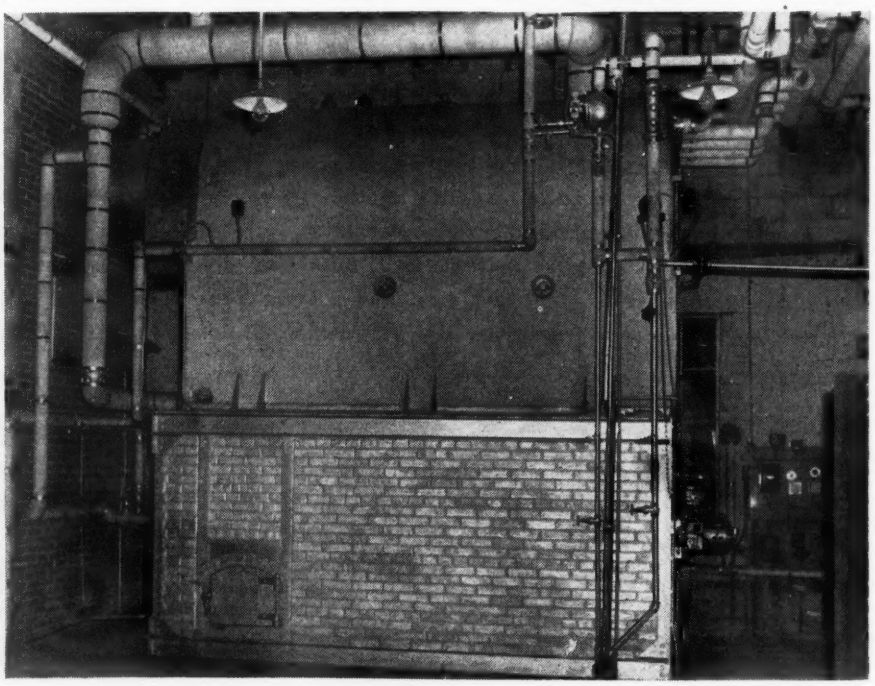
THEORETICALLY, at least, rate of heat release governs the design of the boiler setting or firebox of the industrial oil burner. Practically, some modification of theory becomes necessary, partly because there is no universal acceptance of a fundamental heat release rate, and partly because the design of the boiler greatly affects the design of the firebox. But more than any other single factor, the amount of heat to be released by the fuel when burned determines how much combustion volume should be encompassed within the firebox walls, or to put the matter another way, the available combustion volume for any given boiler setting sets the limit on boiler output.

It becomes evident then that two concepts must be clearly understood before attempting to design a burner installation: combustion volume and rate of heat release. By combustion volume is meant the space enclosed by the side, front, and rear walls of the firebox, from the level of the hearth up to the first plane of entry into or between the tubes. This includes, therefore, not only the space within the firebrick or other refractory, but also the space within the metallic surfaces of the boiler firebox adjoining the refractory combustion chamber. Often, the region within which the flame burns is known as the furnace. As regards industrial burners, therefore, the term furnace is synonymous with combustion chamber. Furnace or combustion volume is always expressed in cubic feet.

Rate of heat release is the total heating value of the fuel burned in one hour at steady and continuous firing divided by the combustion volume. The fuel heating value may be assumed at 148,000 Btu per gallon. If a burner operates steadily and continuously and burns 24 gallons in one hour (or a proportionate amount in a shorter time, such as 4 gallons in 10 min.), and the combustion volume is 115 cu. ft., then the rate of heat release would be 24 x 148,000/115, or 30,887 Btu per cu. ft. per hr. Of course, the division is never carried out to the final digit, but is rounded off at the nearest thousand, and for this case would be designated 31,000. This important fact to discern here is that in dealing with heat release, we are dealing with the full and original amount of heat contained in the fuel. The factor of efficiency does not enter into consideration of *rate of heat release*.

Rate of heat release constitutes the basis of firebox design. Yet there is no universally accepted value of a correct or optimum rate. Many municipalities and other agencies of government or other authority issue regulations on firebox design, containing maximum values for rates of heat release with various fuels. For fuel oil, these established rates of heat release vary from a low of 20,000 to a high of 50,000 Btu per cu. ft. per hr. To add to the confusion, some codes are based on *rated* boiler capacity, rather than *developed* or actual boiler output. The preceding articles in this series brought out the fact that some boilers can be developed to 200 per cent of rated capacity. From all this confusion one can only draw upon experience as to a sensible design basis. The author uses a value of 30,000 Btu per cu. ft. per hr., based upon developed boiler output.

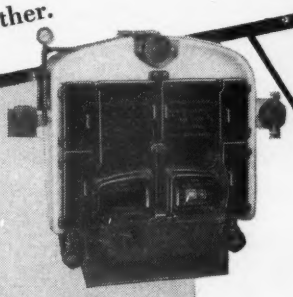
If the dealer knows the maximum firing rate for any given job, in gal. per hr., he can readily compute: cu. ft. required = gph x 148,000/30,000. It will be seen that this corresponds very closely to 5 cu. ft. of combustion space for each gph of burner capacity. It was already pointed out, in the last article, that the firing rate should be 1 gph for each 400 sq. ft. EDR of gross boiler load, or 1/3 gph for each boiler horsepower of load.



*—*C. Hoffberger Co., Baltimore, Md.*

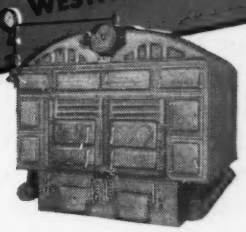
...plus Exceptional Economy in FUEL CONSUMPTION

H. B. Smith boilers' quick response gives greatest value for the fuel dollar. Water tube design and unique flue travel insure maximum utilization of heat. They are easily convertible from one fuel to another.



WHAT SCHOOLS HAVE LEARNED ABOUT H.B. Smith CAST IRON BOILERS

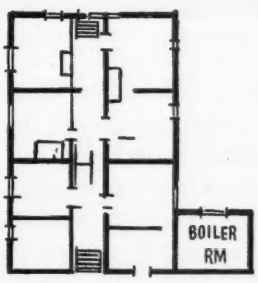
THE H. B. SMITH CO., INC. • WESTFIELD, MASS.



ECONOMY in DESIGN FEATURES

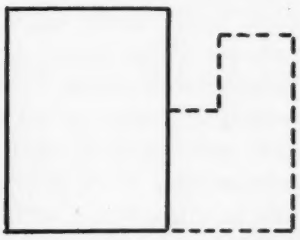
H. B. Smith *low-draft* cast iron boilers operate efficiently with the low chimneys which should identify modern school design. H. B. Smith "Mills" Boilers have exceptionally low draft loss. Hence lower chimneys can be used without the need for complicated induced draft mechanisms.

ECONOMY in CONSTRUCTION DETAIL



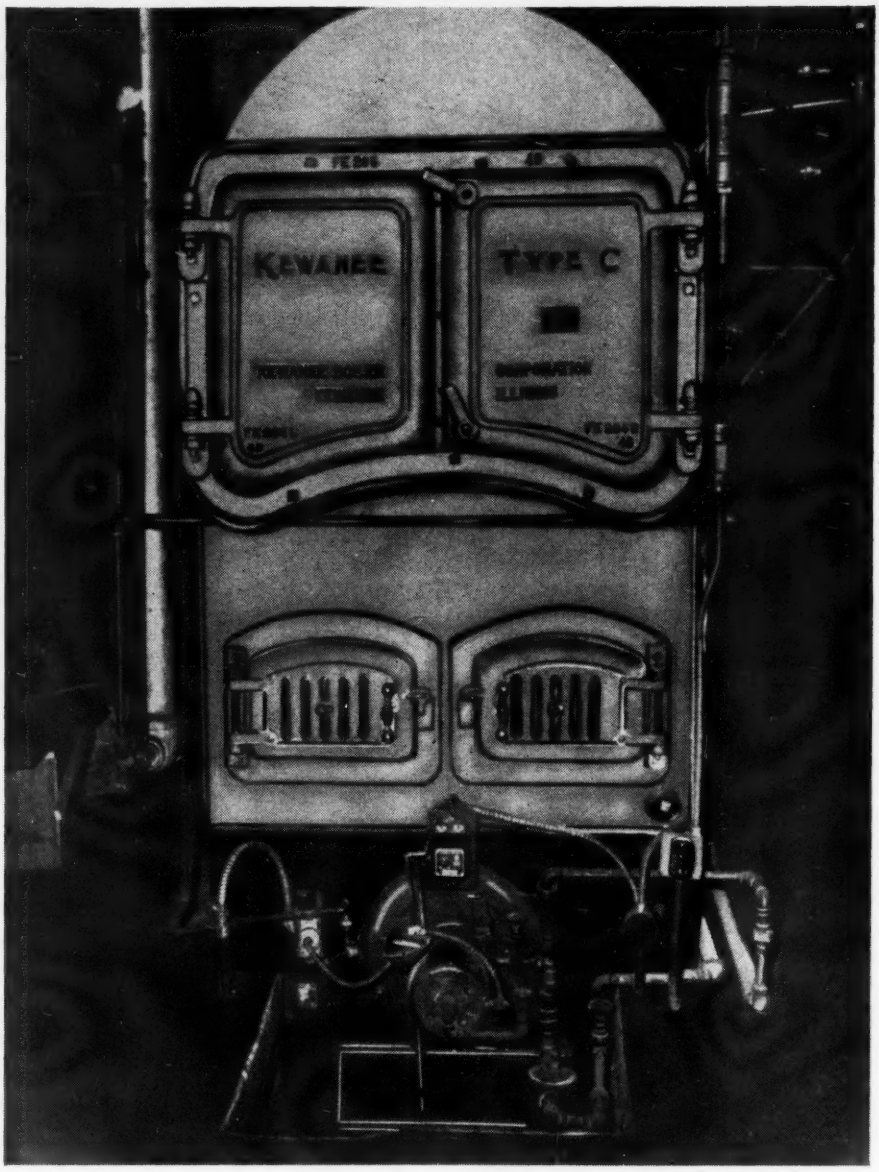
H. B. Smith sectional header-type boilers are compact units. The precision-machined parts are easily moved through conventional entrances for quick assembly on the site in small boiler rooms. No necessity for structural changes when replacing with H. B. Smith boilers.

ECONOMY in EXPANSION FACILITY



As the school is increased in size, it is not necessary to replace H. B. Smith boilers with complete new units. They are easily expansible by the addition of new sections to assume greater heating and hot water requirements.

FOR COMPLETE INFORMATION . . .
Write for the booklet "Facts to Consider When Selecting the Boiler for Modern School Heating," which contains authentic case histories.



Assuming an efficiency of 70 per cent, one would have to furnish 48,000 Btu per hr. in the firebox for each 33,500 Btu per hr. (1 bhp) of boiler output. Dividing 48,000 by 30,000, one gets 1.6 cu. ft. of combustion space required per bhp.

The above rates are not to be considered as absolute, but rather as a guide. However, neither should the indicated values be considered as too conservative. Many designers prefer to operate at lower rates of heat release, and use if possible a value of 24,000, which is equivalent to furnishing 2 cu. ft. per developed bhp. The advantages of low rates of heat release are three: 1) increased combustion efficiency, 2) reduced tendency toward smoking, and 3) increased firebox life, i.e., longer service from the refractory. To state the matter conversely, high rates of heat release (small fireboxes), tend toward unsatisfactory performance resulting in poor efficiency (high oil consumption), smoke violations, and rapid deterioration of the refractory.

Nothing said herein about rates of heat release or firebox design should be construed as applying to the so-called package boiler or boiler-burner unit. These often employ mechanical draft and high rates of heat release, reaching or even exceeding 15,000 Btu per cu. ft. per hr. But such units represent a very special application, and will not be considered in this article. This discussion is based upon firing conventional boilers that operate under natural draft or with induced draft.

Other design Considerations

Aside from combustion volume, there are other considerations, of course, that enter into the firebox design. Of fundamental importance is protection of the boiler mud ring and lower rivet seam, if present, or of the throat of a scotch marine boiler. In the discussion of specific boiler types that follows, attention will be drawn to those features of design that serve in such protective functions. Another consideration is avoidance of flame impingement. Oil burns best in suspension, with the atomized fuel having a clear passageway for the flame, without interfering surfaces which the flame might strike, particularly the cooling surfaces of the boiler itself. Hence it will be seen that intermediate bridge walls, checkered walls, corner piers and wing walls are seldom shown in the typical fireboxes in this series.

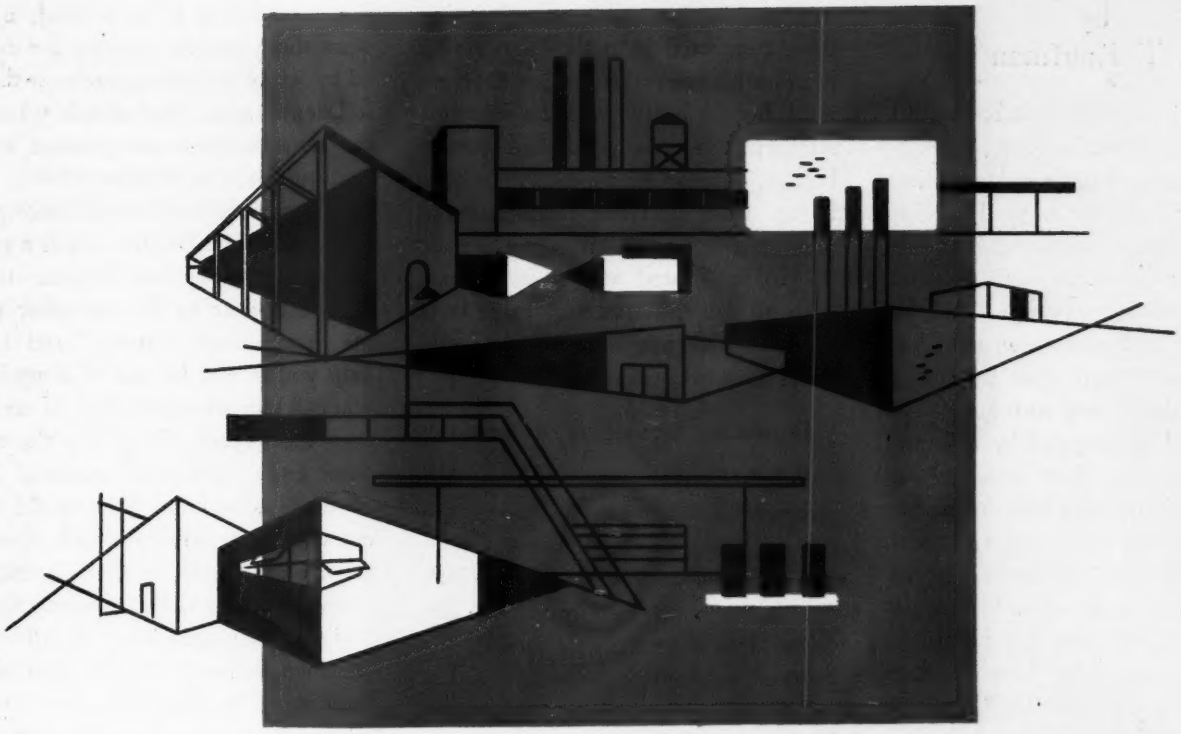
Before considering design of settings for specific boiler types, it might be well to examine some of the problems that will be encountered with practically all conventional boilers when arranging for oil firing. First is the matter of adequate front height to permit attaching the burner in firing position. Most cast iron and steel firetube boilers are shown in their respective catalogs with metal bases supporting the mud ring perhaps 12 or 15 in. above the floor. Except in the very small sizes, almost any industrial oil burner will require more space under the water leg for mounting the burner. Such additional setting height can be had either by pitting the floor or raising the boiler.

The second problem is the clearance required between burner center line and the firebox floor, to avoid having the atomized fuel strike the floor. The burner manufacturer shows minimum clearances in the installation instructions. Usually, it will be beneficial to provide more than the minimum. Under the firebox floor, usually, are the air lanes for introducing secondary air through ports in the floor. The height of the air lanes must be added to the thickness of the floor and the clearance from floor to nozzle to determine total setting

(*Please turn to page* 162)

J-C . . . THE RIGHT HEATING and INDUSTRIAL VENTILATING SYSTEM

for today's defense building program



Jackson & Church Powerated furnaces provide winter warmth and summer cooling for industry . . . in a single installation! Perfect for industrial ventilating with tempered air.

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Fueloil & oilheat

COMMERCIAL & INDUSTRIAL oilburning

Heavy Burner Manpower

Highly specialized Skills call for thorough training Periods

by
G. T Kaufman*

NEAR 12 O'CLOCK ONE bitter-cold, snowy night in February some years ago, three men labored with picks and shovels in the frozen yard flanking one of the large commercial buildings on Boston's Commonwealth Avenue. An occasional passerby, huddled against the cold and snow, stared at them and wondered what they were doing, but didn't stop to inquire. The cop on the beat dropped by now and then to see how they were getting along but didn't tarry long in the biting cold. Hours later, cold and tired, but their job done, the three were off for their homes and a couple of hours sleep before their new day began.

Had the passersby been familiar with oilburners they might have guessed, and rightly so, that these men were exposing a suction line looking for a leak. Actually, they were looking for a leak big enough to have put the burner in that building completely out of operation on one of the coldest nights of the winter. Being good oilburner men they found the leak, too—in a broken three-inch elbow—and by appropriate work with pipe-cutter, die stock, and wrenches stopped it and put the burner back in operation.

Such a job is merely an incident in the life of industrial oilburner service men such as these men were, but it hints at two important facts about them and their work: first, that the industrial burner service man is quite a different person from the domestic service man, and second, that industrial burner service work is entirely different from domestic burner service.

Had this burner been a domestic burner, the domestic service man, on discovering a leak in the suction line, would have sought a temporary repair. Probably he would have pushed one end of a coil of copper tubing into the tank through the fill pipe, passed the other end into the cellar through a window, connected it to the burner and been on his merry way in less than an hour. But the burner wasn't a domestic burner; it was a good-sized rotary burner, burning heavy oil. For such a burner there isn't any temporary repair for a leaky suction line. The leak has to be located and stopped, and with no delay. That's why three men were on this job, at midnight, outdoors on a cold winter night.

Domestic Service is different

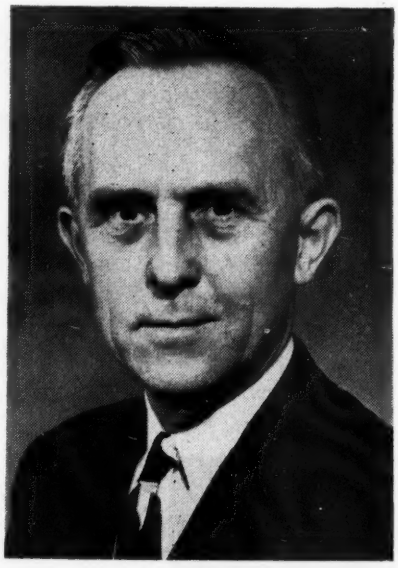
People have been heard to say that commercial-industrial burners are nothing but grown up domestic burners, and that the same men who work on one can work equally well on the other. This is true, in the case of the burners, to about the same extent that a B-36 is a grown up Piper Cub and, in the case of the men, to the extent that the domestic burner man, who is sometimes more of an appliance repair man, is the highly skilled mechanical tradesman and technician the commercial-industrial service man must be. And this is not meant to be a criticism of the domestic service man, nor a reflection on his skill as a workman. It is meant merely to indicate that there are differences in the very nature of both the work and the workmen. It also helps to explain why so few domestic service men enjoy working on industrial burners, and why most industrial men feel like baby-sitters when working on domestic burners.

However, the purpose of this article is not to compare one man's work with another's. Our interest is in the men who are now doing the commercial-industrial work, and in those who may be doing it in the future. A need exists for more of them and is expected to increase as time goes on. Recruiting them from the ranks of the domestic service men seems to be impossible, hence there is no reservoir from which they may be drawn. Where are they to come from?

The logical way to answer this question would seem to be to analyze the work these men do, examine the method by which those who are now doing it learned how, then decide whether the same method can produce more men quickly, and the alternatives.

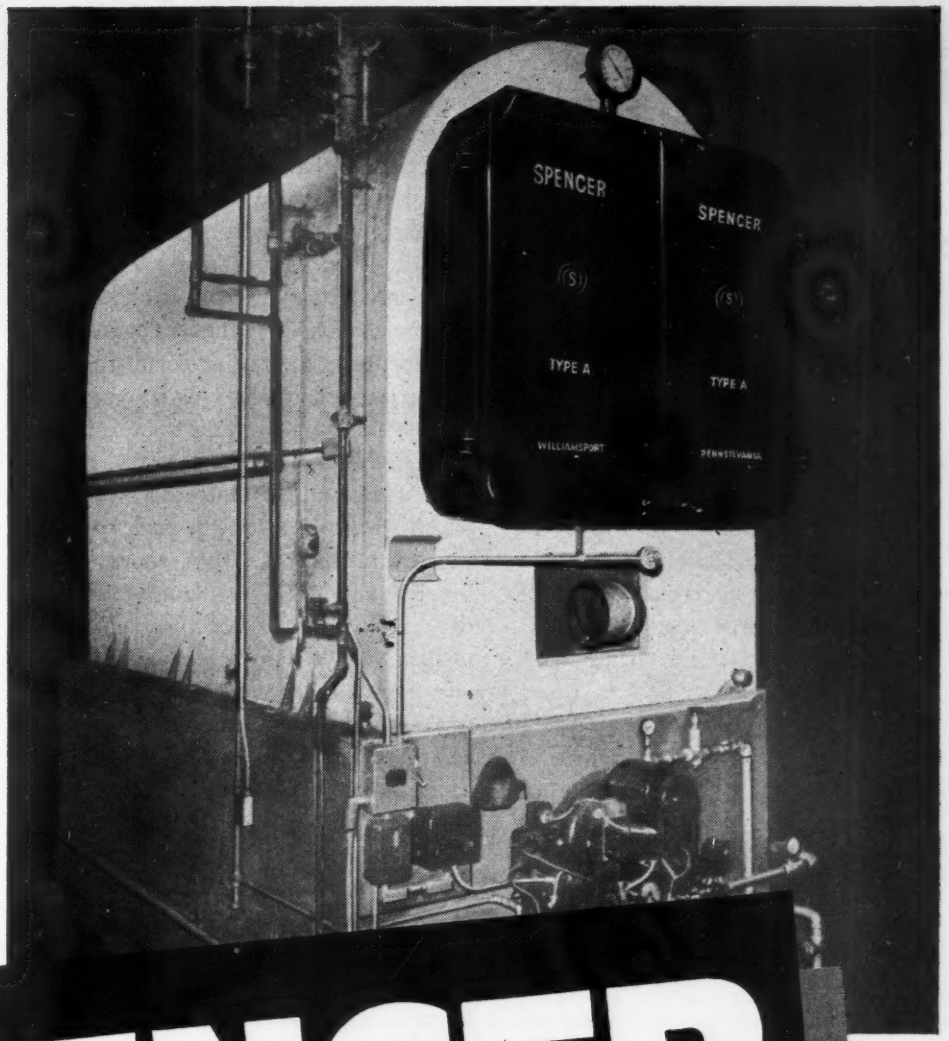
The men referred to are known as service men not because this is a good name for them, but because there doesn't appear to be any other that fits them except "expert," and Lord help you if you let one of them hear you call him an expert. But, of course, they are experts. They are the men who *know* comercial-industrial oilburners—who know how to do, and can do, all the different kinds of work involved in installing them, adjusting them, operating them, repairing them, and servicing them. They install burners when the need arises but more often their work on installations is that of supervisor or straw-boss. This requires them to have a thorough knowledge of piping, wiring, and brickwork, the three basic kinds of work involved in oilburner installations.

After an installation is completed they must start the burners, exercising the proper care to fire them lightly until the brickwork is dried out. They must test and check all parts of the installation, and adjust the controls for the kind of operation desired. They



G. T. Kaufman

*Technical Secretary, Oil-Heat Institute of America, Inc., New York.



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must check the draft and adjust the air-oil interlocking devices for proper air supply throughout the firing range, and on heavy oil jobs, adjust the oil temperature regulating devices. Then finally, when they have everything in perfect order, they must teach someone how to operate and care for the burners. And, of course, this is their work only on installations. On service work they must bring out and display another assortment of skills.

Here they must know how to locate trouble, all sorts of trouble, from a tiny break in an electronic circuit to a break in a suction line; from a carbonized oilheater to a carbonized igniter; from a dry boiler to a dry tank; from a burned out motor to a burned out phototube. They must be able to locate these and any number of other possible troubles quickly, and after they have found them, must be able to correct them equally quickly.

Immediate Service is needed

In their kind of service work there can't be any "You can get along tonight, I'll be back in the morning" service calls. Things have to be restored to proper order as soon as the defect can be found. Many industrial burners are on the job twenty-four hours a day, every day, and these that aren't on the job usually have to be in readiness to go to work at any time of the day or night they may be needed. Most commercial burners work only during the heating season, but then they are on full time duty also. Hence any time either a commercial or an industrial burner needs service, it needs service immediately. Commercial-industrial service men have to accept this fact.

This is an extremely brief discussion of the work of commercial-industrial service men that does not do them justice. However, if it gives only an indication of the knowledge and skill they must have, it justifies asking, how did they learn to do this work?

The short answer to this question is, they learned the hard way—by doing; by doing the wrong things and employing the wrong methods often enough to learn them all and be able to discard them and have nothing left but the right things and the right methods. This way of learning is unquestionably the best of all ways, but it is also the slowest.

Some checking with manufacturers and dealers indicates that over the years only a comparatively small number of men have had sufficient patience and fortitude to stay at commercial-industrial burner work long enough to become skillful at it. This small number, spread out over the industry, one here, two there, a half-dozen somewhere else, constitutes the real working organization. In peak times less capable men join temporarily, then drift away during slack times, either of their own volition or because of layoffs. Normally the work is done by the small working organization, which is composed largely of mature men who have devoted most of their lives to it.

Since the men who are now doing the work learned to do it by the time-honored but time-consuming method of "learning by doing," their method obviously cannot be used if the labor force is to be expanded quickly. Shorter methods must be found.

Work must be made attractive

In deciding what these methods are to be, consideration must be given to the fact that the work is attractive to few men, if we are to judge by the number who have heretofore adopted it as their life work. Perhaps the slowness of the process by which the work must be learned is part of the reason for the reluctance of large numbers of men to take it up, but the unattractiveness of the work itself must also be a considerable part of the reason. Cold analysis of the work shows that much of it is laborious, that it is frequently extremely dirty, that it requires a willingness to work long hours and at odd hours, and, perhaps most important of all, that it does not pay too well. Moreover, men to be good at it have to know so much about so many things that beginners, unless they develop a particular love for it, too often become discouraged and drop it for other work that is easier and more pleasant and pays them better.

The problem of expanding the labor

force will thus be the two-pronged one of finding ways to accelerate the training process and of selling the attractive features of the work to potential trainees. The latter may be difficult because the attractive features are not as tangible as its less attractive ones.

Men who stay at the work year after year like its variety and the opportunity it gives them to exercise ingenuity and self-reliance, and to be free from close supervision and restraint. They prefer its occasionally hard and dirty jobs to the, to them, withering monotony of shop work.

These attractive features of the work clearly are difficult to sell. Furthermore, these features are attractive to many men who will never become conscientious workers, but are drifters whose desire for variety prevents them from sticking to any kind of work for long. The traditional way of weeding out this class has been to hire almost anyone who applies for a job, try him out, let him go if he's hopeless, raise his pay and try to push him along if he shows promise. But this takes too much time and is out of the question for any kind of accelerated training.

Advantage of school Training

Most employers of commercial-industrial burner men are firmly of the opinion that these men cannot learn their work in schools. The common belief is that they, like artists, are born, not made. Well, certainly no school can teach a man the things he will have learned after ten years or so of experience. On the other hand, a man with good school training will know more after only a couple of years of experience than the unschooled man will know after ten. There is no longer anything mysterious about an oilburner. At one time an oilburner man had

(*Please turn to page* 162)

Trim Your Bids and Build Your Profits

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How can you bid competitively to win contracts, yet protect yourself against all the extras that go with an oil burner layout?

The answer is to bid Thermal Electric. Thermal Electric gives bunker oil layouts new simplicity because it eliminates all the antiquated apparatus of steam fuel preheating and recirculation. This means that with fewer and simpler parts, you don't have to worry about the extras chiseling into your profits. With Thermal Electric's simplicity, your bids are safer, more accurate, more competitive — *and more profitable!*

Here is how Thermal Electric helps you to trim your bids by simplifying your equipment needs and reducing labor costs for installation:

1. Recirculation eliminated: No need for it now because Thermal Electric's heat source is completely independent of the burners. Constant or cycle operation during shutdowns is eliminated. Thermal Electric keeps the fuel at flow temperature while burners are off—or the system can be shut off without draining because Thermal Electric will melt out the pipes electrically.

2. Steam or hot water tracing eliminated: Thermal Electric is all electric. It heats the fuel by passing low-voltage current through the pipe walls. The pipelines are clean and uncluttered, requiring only thermal insulation.

3. Multiple suction lines eliminated: With Thermal Electric, the bunker fuel can flow fast or slow, or can be stopped. The fuel will not overheat and coke. With correctly sized pipe, a single suction line easily serves multiple burners.

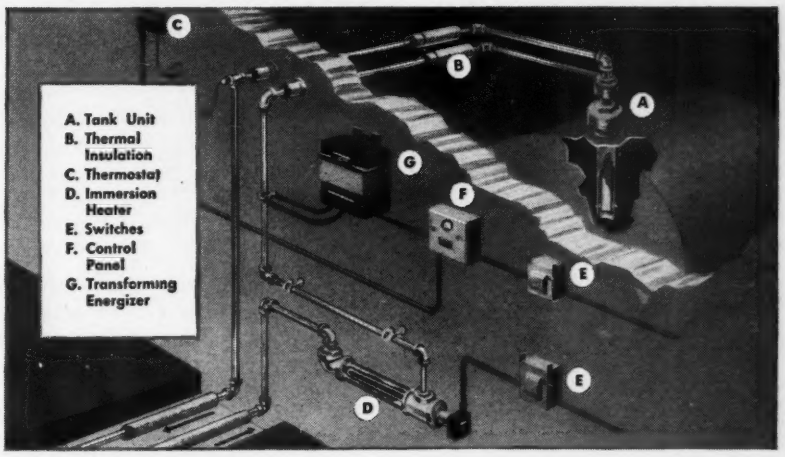
4. Remote pump-sets eliminated: With Thermal Electric, the crudest bunker flows like light, free-flowing oil. This pins viscosity, reduces pump load and makes remote pump-sets unnecessary.

5. Auxiliary heat in storage eliminated: The simple Thermal Electric Tank Unit mixes returning fuel with a portion of the cold fuel surrounding the Tank Unit. The bulk of the fuel stays solid until used, eliminating stratification.

With all of this cumbersome apparatus removed, there is no more need for these bid-boosting items:

(1) Fuel oil preheater, (2) Heater brackets and supports, (3) Heater insulation, (4) Automatic temperature regulator, (5) Steam trap, (6) Steam strainers, (7) Steam piping and valves, (8) Condensate piping, (9) Oversized piping, brackets and supports, (10) Remote pump-set, (11) Piping and foundations for remote pump-set, (12) Steam or hot water coils in the storage tank.

Presto! *Your bunker installation is now the same as one for free-flowing oil,* plus simple Thermal Electric equipment! Consider the tremendous labor savings. By reducing installation labor, Thermal Electric takes the risk out of the most hazardous part of your job estimate: the labor-plus that can swallow your profit. You're safer all around with Thermal Electric—and your customers are happier with *guaranteed maintenance-free* bunker transport.



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To help you prepare safe, accurate Thermal Electric bids, we provide handy cost estimating forms.

With these forms, you can prepare your bid completely in *five minutes!* You do not have to consult us before bidding.

You can't overlook a thing—it's all listed for you. Just fill in simple data such as number of burners and pipe length, and you see *exactly* what Thermal Electric equipment you need.

A quick check of our price list, included with the forms, and you have *all* of your Thermal Electric equipment costs.

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When installed according to installation specifications, Fluid Systems, Inc. *guarantees* that Thermal Electric will (1) remove #6 fuel from underground storage without auxiliary heat in storage and (2) deliver fuel at 120°F. to each burner connection under all conditions of flow or standby.

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COMMERCIAL & INDUSTRIAL oilburning

Heavy oil Pumping, Heating

Oil Heaters, Pumps, Piping and other Equipment used with No. 6 Fueloil

by
A. J. Poole*

From this article by a power plant expert, dealers new to big-job technicalities can gather dozens of points of information—bland mention of oilheating and pumping rates up to 20,000 gph, oil pressures of 100 to 300 lbs. as the usual thing for power plants and the general advice on being able to heat oil to 240° F. for jobs using mechanical-atomizing or steam-atomizing burners.

On the other hand, readers already versed in large-job engineering, will discover interesting points and will be able to compare their experience with those of this oil-fired boiler expert. Where the author does things differently than they do, they may get a kick out of realizing there is more than one way to skin a cat!

IN THE INDUSTRIAL OILBURNING FIELD the fueloil generally burned is grade No. 6, usually called Bunker C. This oil is the last major marketable end product in refining and as such is less expensive than the lighter fueloils. It carries a minimum of specifications —a minimum flash point, and an upper limit on viscosity so that the user can handle it without difficulty. These facts dictate a different design of oil pumping and heating equipment than is required for the lighter fueloils.

As the range of capacities of oil pumping and heating equipment for this fueloil extends from as low as 15 gph to upward of 20,000 gph depending upon the plant requirements, this article cannot be too specific. However, in general the requirements are the same—only the details differ.

The first consideration is oil storage. Usually local conditions dictate whether the storage tank will be located above or below grade and whether the tank will be vertical or horizontal. Local ordinances generally dictate the structural features. An excellent treatise on the subject has been issued by the National Board of Fire Underwriters; a copy may be procured from them by requesting NBFU pamphlet No. 30. This deals with details as to how the tank should be arranged, its construction, and requirements for preventing the spread of fire resulting from a tank leak. This treatise is highly recommended to supplement local ordinances.

The next item is oil storage capacity. Factors that influence this are:

1. Space available for the tanks.
2. Size of deliveries.
3. Proximity of the nearest oil supply depot.
4. Weather conditions.
5. Future expansion of the plant.

Where infrequent, large deliveries of oil are less expensive than frequent, small deliveries, large storage capacity is desirable. Hence the largest feasible storage capacity may be most economical in the long run.

Oil may be delivered by tank truck, rail tank cars, and barge. An investigation into the methods of delivery possible for the particular installation should be made, and provisions made to handle several days' reserve in the tanks plus a full delivery. For example, if the size of installation warrants oil deliveries in 2500 gallon tank trucks, the storage capacity should be at *least* 2500 gal. plus the quantity normally burned in 3 or 4 days.

The proximity of the nearest oil depot and severity of weather conditions should receive consideration. Where the depot is remotely located and severe snow storms may be experienced, the fueloil reserve should be considerably greater than for a plant situated more favorably.

For the most favorable supply and weather conditions there should be a storage equivalent to at least two weeks consumption of fueloil at maximum plant capacity, and at least three weeks for plants located in unfavorable weather areas, or where the oil depot is distantly located.

If the oil is to be used as a standby for another fuel or if there is an available supply of some other fuel that can be burned in place of the fueloil,

*Staff Engineering Dept., Babcock & Wilcox Co., New York, N. Y.

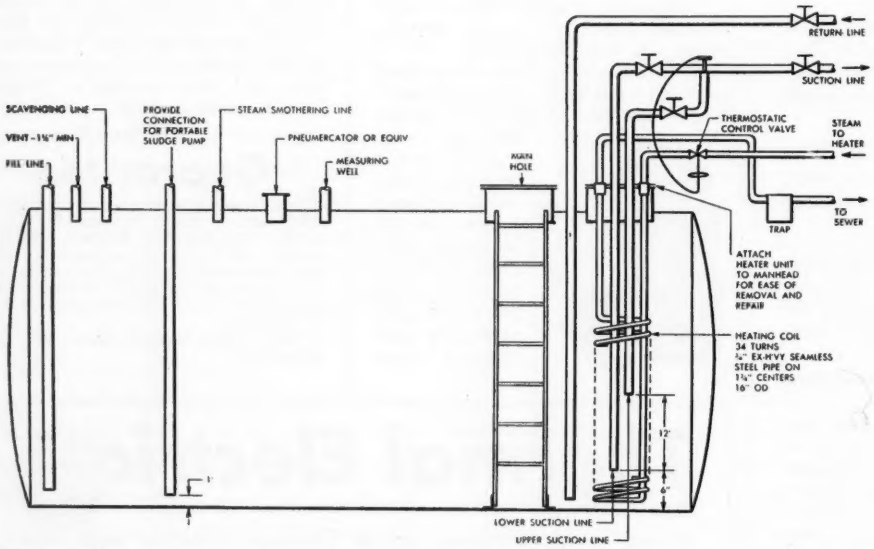

Fig. 1. *Tank attachments, including gauge openings, fill and vent pipes and fire protection devices. Piping immersed in the oil tank should be of black steel, with all fittings of the flanged type—no packed joints. The lower suction line shown is the one normally used; the upper suction line is used in emergencies to forestall shutdowns when water collects to the level of the lower suction line. Before installation, the arrangement shown above should be checked against local Code regulations and revised, if necessary.*

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KEWANEE
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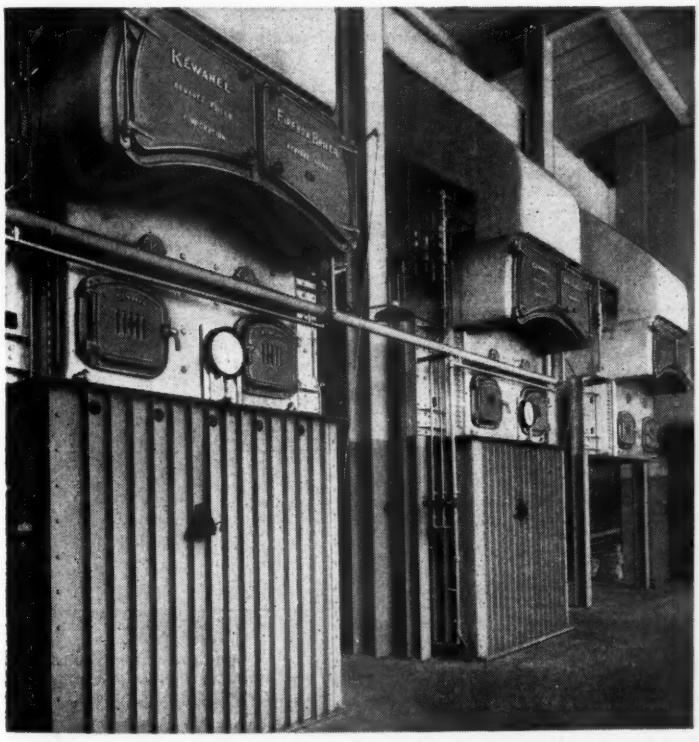

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The vocational high school at Hammond, Indiana is an outstanding example of the modern thinking which goes into the construction and equipment as well as the teaching methods of America's new schools.

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then some reduction in the amount of storage can be considered. However, it would be well to determine if the auxiliary fuel will be available always. For example, in some localities natural gas is available at certain times of the year but usually during the winter it is not available to industrial users.

Future expansion of the power plant also should be considered; one large tank is cheaper than two smaller ones installed several years apart.

The tank should be equipped with certain attachments which are shown diagrammatically in Fig. 1, for determining the amount of oil in storage at any time, for fire protection, and the usual fill and vent needs.

Tank Heater

Generally speaking it is necessary to have Bunker C oil at a temperature of about 90° F. in order to be certain of being able to pump it, although in some warm climates the oil refineries apparently blend enough light stock with the heavy oil to permit pumping it if the temperature does not drop below 70° F. and thereby obviate the need for the tank heater except during abnormal weather conditions. Certainly, anyone designing a heavy oil system should provide for heating the oil in the storage tank.

There are two methods for accomplishing this: (1) recirculate enough returned hot oil to keep the oil in the tank at the proper temperature, or (2) supply heat to the oil tank by an auxiliary heater. The latter usually is the preferred method. The auxiliary heat is usually obtained by providing a coil of pipe around the suction stub in the tank and supplying low pressure steam or hot water to the coil. A more recent method uses electric heating. The choice is largely dictated by the cost of the heat source. The oilheating unit should be controlled to maintain the proper temperature for pumping the oil.

Where steam is used as the heating medium, the recommended practice is to discharge the condensate from the oilheater to the sewer and not return it as feed water to the boiler. The reason for this is that a leak in the heating coil can contaminate the condensate and the consequences of oil getting into a boiler unit, resulting in failure of the heat absorbing surfaces, are entirely too costly to take the risk. Where hot water is used for this purpose as is the case in many small plants, the amount of water required is of such magnitude as to warrant returning the water to the system to avoid wasting it. When this is done provisions should be made to permit checking the returned water from the tank heater for any oil contamination before it goes to the main hot water system.

A tank heater should be located close to the suction line so its effect on the oil suction will be fast. To heat the entire tank of oil is not necessary. Similarly, the return oil line should be close to the tank heater. In starting up after a long shutdown the oil can be circulated through the system to purge it of cold oil. Returning the purged oil close to the tank heater reduces the work the heater must do to raise the oil temperature to that desired for pumping.

Transfer Pumps

Bunker C oil at a temperature of about 90° F. has an appreciable resistance to flow. Unless the storage tank is located at a level higher than the main oil pumps and is favorably disposed toward obtaining flow to the main pumps under adverse conditions, a transfer pump, or pumps should be located adjacent to the oil storage tank. The pumps may be electrically or steam driven. A popular arrangement is to use one electric and one steam powered pump and size each pump to deliver about 25% more oil than is required so that either steam or electric power can be used over the full load range. The pump need not be expensive. It merely lifts the oil out of the storage tank and delivers it into the boiler house at 5 to 10 psi.

The pipe line from the transfer

FUEL OIL AND ATOMIZING STEAM PIPING SIZES

The following oil pipe sizes are recommended for the discharge* side of heater where pumping and heating sets are located within 100 ft of the burners. Atomizing steam header piping sizes are also given.

These values can be used for headers serving one or more boilers by totaling the oil flow to all units.

TYPE OF PIPING	OIL VISCOSITY, S.S.U.	OIL FLOW, lb/hr	APPROXIMATE STEAM FLOW FROM UNIT, lb/hr	SIZE OF EXTRA-HEAVY PIPE, in.
Suction, (Storage to pump and pump to heater)	5000	1000 to 1500	14,000 to 21,000	2
		1501 to 3000	21,001 to 42,000	2½
		3001 to 7000	42,001 to 98,000	3
		7001 to 12,000	98,001 to 168,000	3½
		12,001 to 20,000	168,001 to 280,000	4
		20,001 to 50,000	280,001 to 700,000	5
		50,001 to 100,000	700,001 to 1,400,000	6
*Discharge, (Heater to burners)	135	1000 to 8000	14,000 to 112,000	1¼
		8001 to 15,000	112,001 to 210,000	1½
		15,001 to 25,000	210,001 to 350,000	2
		25,001 to 50,000	350,001 to 700,000	2½
		50,001 to 80,000	700,001 to 1,200,000	3
		80,001 to 150,000	1,200,001 to 2,100,000	3½
Atomizing Steam Header		Up to 6000	–	1
		6001 to 12,000	–	1¼
		12,001 to 16,000	–	1½
		16,001 to 27,000	–	2
		27,001 to 39,000	–	2½
		39,001 to 60,000	–	3
		60,001 to 100,000	–	4

Pipe sizes are based on the use of oil having a viscosity of 135 S.S.U. and saturated steam at 125 psi for atomizing purposes.

For locations other than given above, use larger pipe sizes. In calculations, pressure drop between pump and burners, including allowances for heaters and fittings, should be limited to about 60 psi.

The average pump has a maximum lift of about 15 feet. Piping must be of a size that will not use up the entire lift of the pump in pressure drop. The actual lift from the tank to the pump plus the pressure drop in the piping should not exceed the rated lift of the pump. As a precaution it is recommended that the total pressure drop should not exceed 75 per cent of pump lift. Oil temperature at pump suction for No. 6 oil will normally be from 90 to 120 F which will give a viscosity of approximately 5000 S.S.U. to 3000 S.S.U. Pump lift must be obtained for both conditions and checked against the sum of actual lift from tank to pump plus pressure drop in piping. If suction lift is exceeded, consideration must be given to a transfer pump preferably located at the storage tank.

Fig. 2. *Suggested pipe sizes for various parts of the system.*

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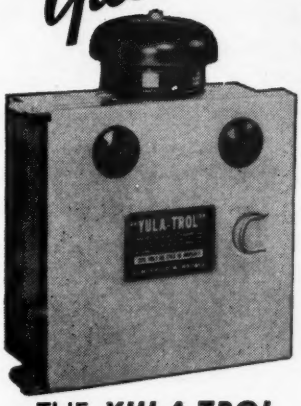
A COMPLETE *Line* of FUEL OIL *Pre-Heaters* FOR USE WITH NO. 6 (BUNKER "C") *Fuel Oil*



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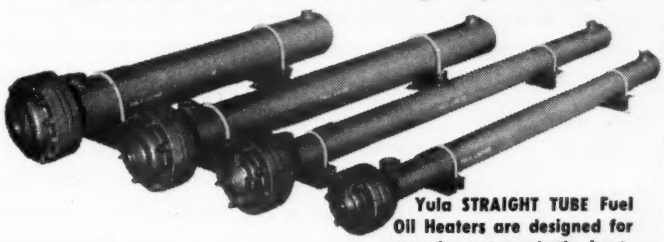

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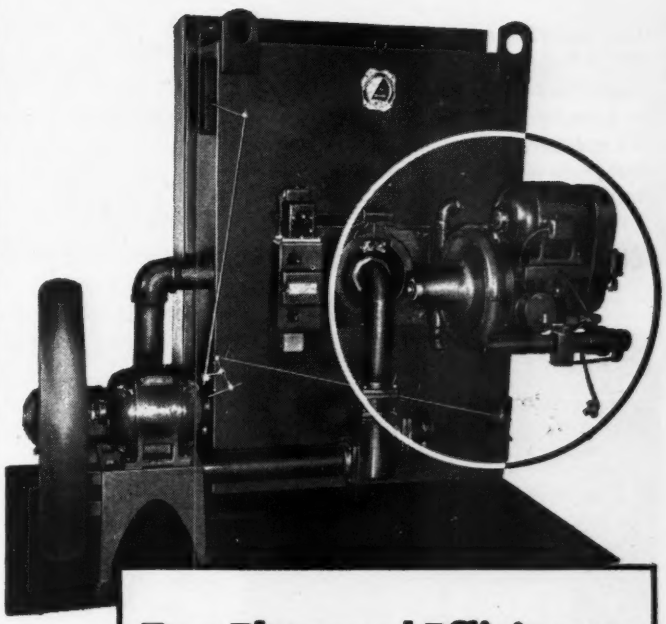

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Below: Open view "Lectricarm" power drive unit.

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pumps to the boiler house may be buried or placed in a trench with a removable cover. Depending upon the distance between the boiler house and the storage tanks and the severity of weather, it may be necessary to heat this line. An electrical heating system accomplishes this easily; one or more heating units may be used along the line, or a steam or hot water line to heat the storage tank oilheater can be located adjacent to the oil lines and all the lines insulated together. Where these lines are placed in a trench they should be wrapped with a waterproof covering over the insulation. Where freezing weather may be encountered provisions should be made to prevent freezing of the steam and condensate lines and traps. Fig. 2 shows suggested pipe sizes for various parts of the system—the lines carrying the more viscuous 90° F. oil, and the lines carrying the "hot" oil.

As the vast majority of oilburners used in power plant applications require oil pressures from 100 to 300 psi and temperatures from 165° to 200° F., the next phase of the pumping and heating equipment is to increase the pressure and temperature to the required value from the 90° F. and 5 to 10 psi provided by the tank heater and transfer pump.

Service Pump

Practice varies as regards service pumps, and no hard and fast rules can be laid down. Usually boilers installed in factories that use process steam for the products will use steam-driven auxiliaries throughout—for fans for drafting the boilers, for feedwater pumps, and for fueloil pumps. Some large industrial plant boilers have two means of driving auxiliary equipment, steam only for standby, and electric for economical normal operation. Still others use electrically driven equipment throughout. The diagram in Fig. 3 indicates both steam and electric type pumps.

The motor-driven pumps may be either a gear or screw type and while such pumps can be driven only by steam turbines, in most installations where a steam-driven pump is used the type selected is the duplex. While this uses much more steam than an efficient turbine driven pump, the slow speed and traditional reliability of the duplex pump make it a favorite.

Reciprocating type fueloil pumps must have large air chambers to dampen out the fluctuations in oil pressure that without this occur at the ends of the pump strokes. Most pumps come equipped with air chambers inadequate for the service. The air trapped in the top of the chamber in time is absorbed by the oil and an oil-filled chamber does not steady the oil pressure. Small chambers cause the oil pressure at the burner to fluctuate violently and produce a pulsating flame. Where an automatic combustion control of the modulating type is used, as is usual with this type of equipment, the fluctuating oil pressure affects the control of the combustion air and starts it hunting. Furthermore the wear of the delicate parts of the controls and pressure gages becomes excessive.

Therefore, an additional air chamber is needed in these systems. A good air chamber can be made from a 6′ to 10′ length of 6″ or 8″ pipe connected in the oil line after the reciprocating pump as indicated in Fig. 3. This will dampen oil pressure fluctuations of 25 psi down to less than 5 psi, which is quite acceptable. After some time the pressure will start to fluctuate. Before the fluctuations become excessive for the particular installation, the air chamber can be drained by isolating it and opening the pipe plug at the top and drain valve at the bottom, thereby restoring the steady oil pressure.

Oil Heaters

To obtain the desired oil temperature, oilheaters using either steam or hot water as the heating medium are required. These heaters should be designed to heat the oil to 240° F. so they will be suitable for any unusual fuel condition that may develop, and should have a capacity of about 25% more than that required for full output of the boiler equipment. The heaters generally are arranged in banks so that

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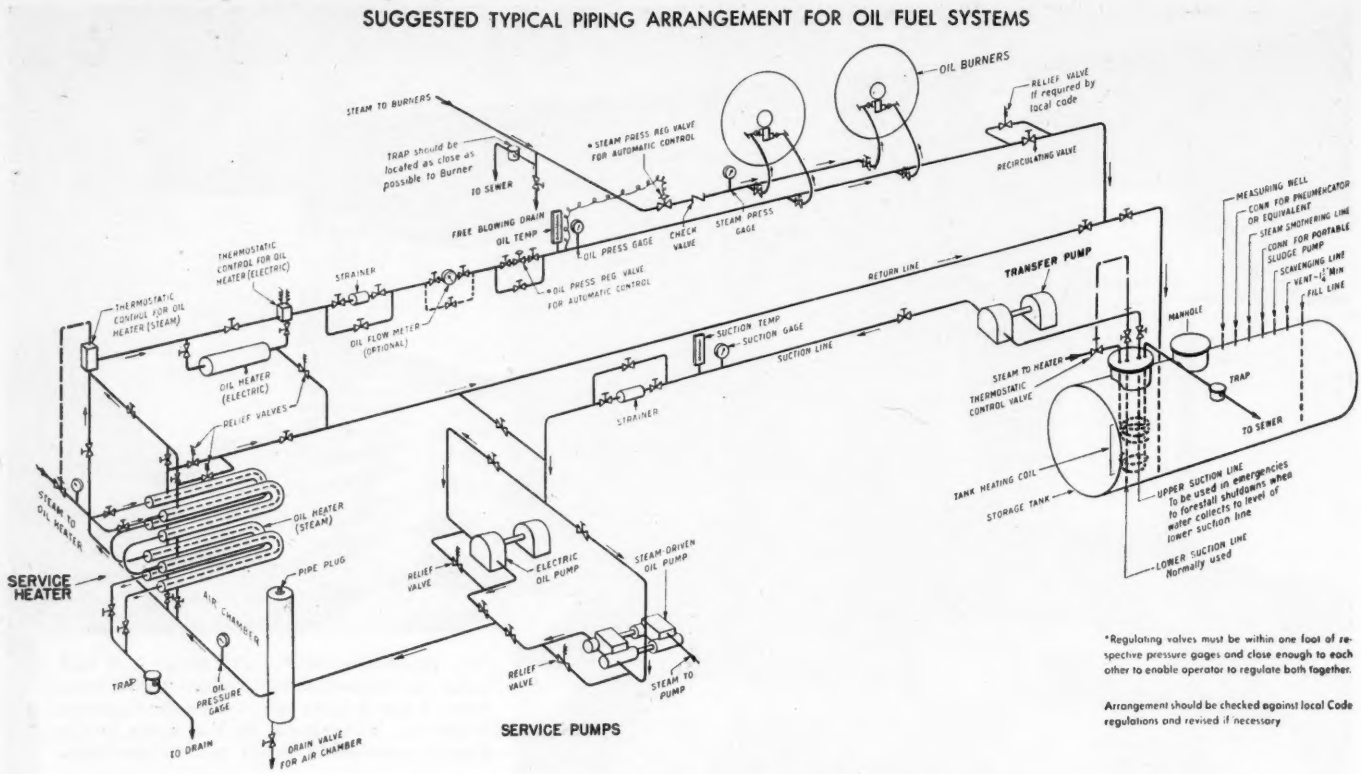

Fig. 3. *Typical arrangements for piping to pumps, oilheaters, strainers, valves, instruments and controls.*

individual heaters may be cut in or out of service manually to match the number of boilers in use at the time.

Because of the maldistribution within the heaters and the occasional poor operation of the temperature controlling element, trouble may be experienced from time to time with carbonization of the fueloil with resulting

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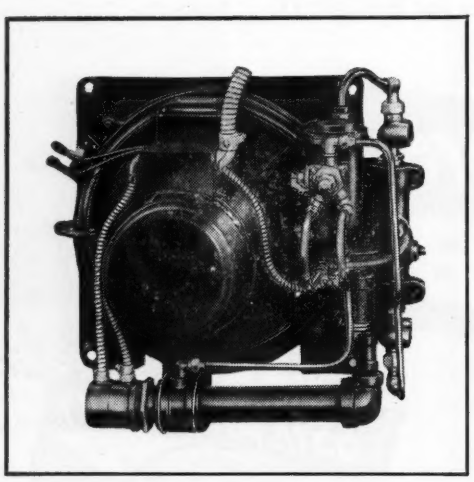

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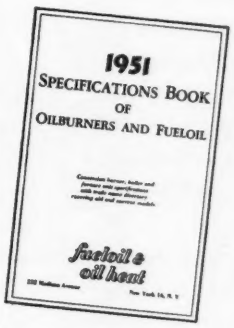

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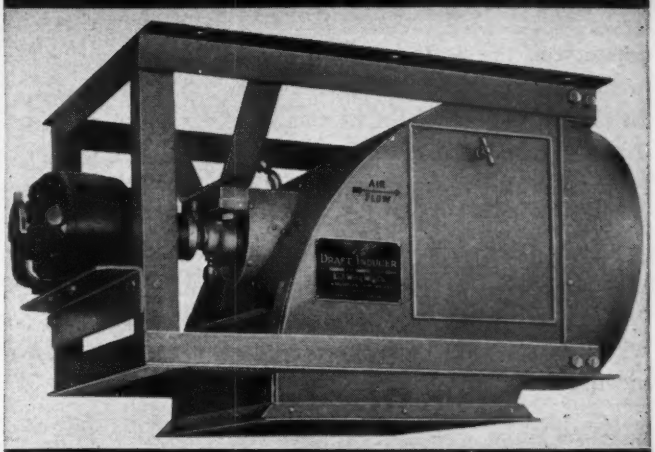

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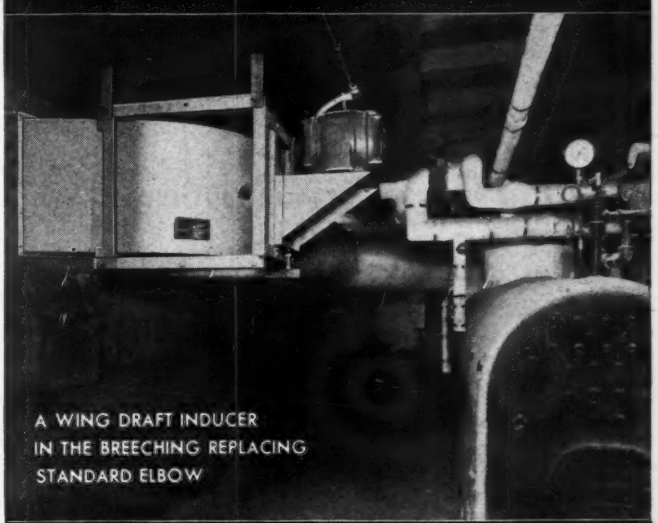

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deposits on the heating surfaces and loss of heater capacity. This requires occasional cleaning of the heaters and if the required reduction in plant capacity during the heater cleaning period cannot be tolerated, spare heaters should be incorporated in the system.

Heater surfaces should be arranged for ready removal and easy cleaning, with space around the heaters provided for the necessary access. Any extended heating surface in the form of fins on the elements should be of such construction that deposits may be removed easily. Generally fins arranged lengthwise of the pipe and radial thereto, so a section through a heating element when viewed from the end appears like the spokes of a wheel, give the maximum facility for cleaning. It must be remembered that the deposit on the surface will be largely of carbon which is not dissolvable; the deposits must be removed by mechanical means.

The service heaters should be equipped with a thermostatic control. A steam atomizing burner performs well with the oil temperature 15° F. or so off from the desired value whereas a mechanical (pressure) burner requires closer regulation. If you adjust the number of heaters in service, even a rather crude temperature control will hold the temperature within acceptable limits. Using only one of four boilers in a plant, much better regulation of the oil temperature is obtained with a corresponding number of oilheaters.

As in the case of tank heaters the accepted practice is to discharge the condensate from steam oilheaters to the sewer to avoid contamination of boiler feedwater that might occur from a heater leak. Where recirculated hot water is used for this purpose on unusual installations, take pains to check on the possibility of fueloil contamination in the returns.

In the smaller plants where the boiler plant may be shut down for the weekend, getting started again the following Monday may be a problem. One method for coping with this is to have an auxiliary oil supply using light fueloil not needing heating; by using either the main oil pump set or a special one for the light oil, a boiler can be fired until steam is available for the heavy fueloil heaters.

In some plants of this type the cold-start problem is solved by electric oilheaters in the main oil system. Where the cost of electric power is somewhat high, it is normal to size the electric heaters for enough capacity to heat the oil to the required temperature at the minimum firing rate required to bring a cold boiler into service. This would be equivalent to the minimum rate of a rotary cup type burner or about 15% of the full load requirements of the boiler fired by a pressure or steam atomizing type burner. Low output burner tips often are used for the steaming up interval.

Electric heaters should have thermostatic controls or equivalent protection to avoid oil too cold to burn properly or overheated to the point of coking in the heaters.

Strainers

Provide a strainer in the oil system just ahead of the service pumps and one following the oilheaters. The first removes much foreign matter in the fueloil as it received, and the second not only prevents foreign matter that gets past the first strainers from entering the burners but also removes any carbon that forms in the heaters. Several types of strainers are suitable for this service, but the basket type is used generally. Usual practice is to have 1/16" or 1/32" dia. holes in the strainer ahead of the service pumps, and 1/16" dia. holes in the strainers following the service heaters. The total area of the perforations in each strainer should be about six times the area of the connecting pipe.

Where continuity of service is of paramount importance and there is no auxiliary fuel available, the duplex strainer should be used. Single strainers often are acceptable in small installations, if the load permits an interruption in firing at weekly intervals to permit strainer cleaning.

Relief Valves

At several locations in the oil system, relief valves as shown in Fig. 3 are needed to protect the equipment against excessive pressures that might result from improper operation. In small systems a pressure regulating valve at the pump maintains steady pressure and avoids damaging pumps of the constant displacement type. A preferred arrangement, whose cost generally can be justified in larger installations, is to provide a separate control valve following the service heaters. This is regulated automatically from the oil header pressure to bleed

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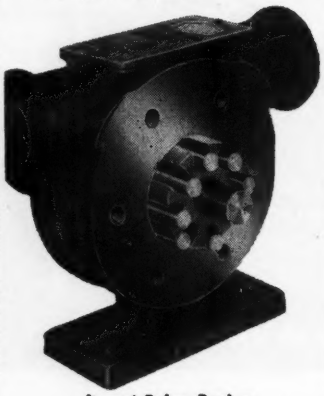

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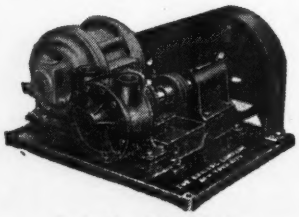

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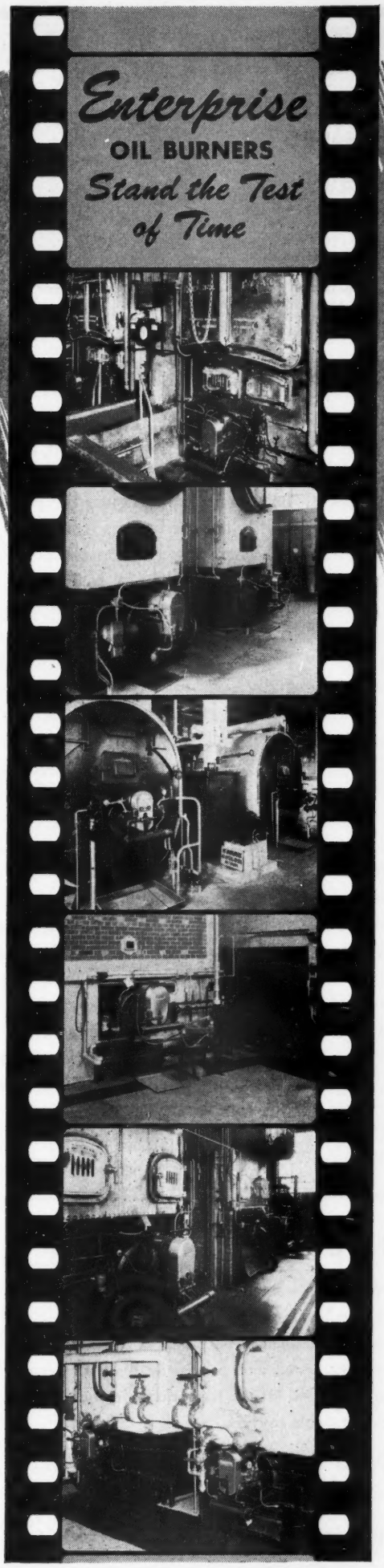

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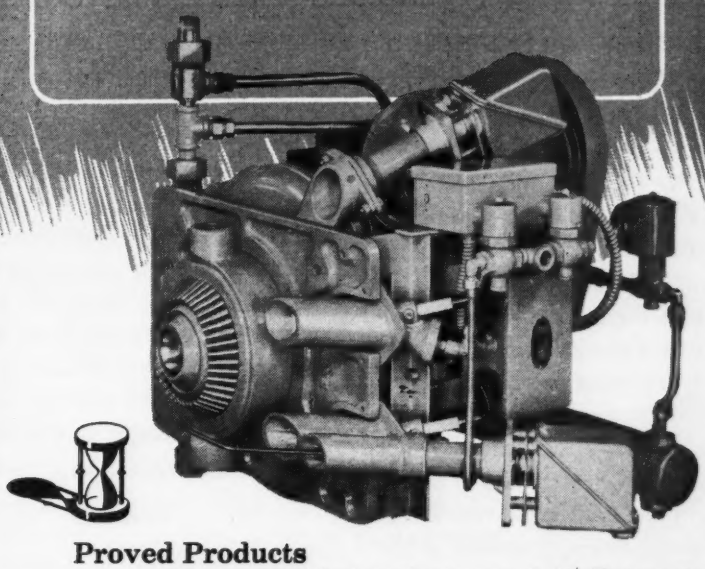

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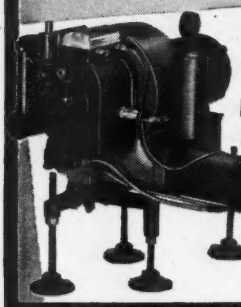

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. . . Heavy oil Pumping

excess oil back to the storage tank and maintain the desired header pressure, and is better than an ordinary spring-loaded valve for this function. While the latter will do the job within the limits usually required of smaller installations, it lacks the refinement of control that the more expensive pressure control valve possesses.

In selecting relief valves for oil systems, use only valves intended for this service. Ordinary safety valves are not suitable as they are designed to relieve gas under pressure. If a gas type safety valve is used, severe pounding of the piping may result. The liquid type relief valve is so designed to bleed off the pressure fairly constantly with no tendecy for intermittent opening and closing which causes the piping shocks.

Instruments

Fig. 3 shows recommended gages and thermometers for a simple heavy fueloil pumping, heating, and storage system. These permit tracing trouble quickly to its source and isolating the offending piece of equipment. The thermometers and pressure gages should be of the highest quality and should be maintained in accurate calibration. Pressure gages and controls should be mounted with short large connections on the oil pipe itself, or if the reading must be transmitted to another location, use a fluid that will not become sluggish, from the point of pressure measurement up to the pressure gage. In a long pressure gage line, heavy fueloil will cool to the point where its movement is very sluggish, and indicate erroneous pressures.

Controls

The diagram in Fig. 3 shows a minimum of controls for the small installation. Large plants entirely dependent upon fueloil can afford to spend considerable more money for more efficient operation. As an example, if the oil temperature in a small industrial installation varies 20° from the desired value this may be of little consequence. It may not adversely affect burner performance. On the other hand, a large public utility should hold the fueloil temperature within plus or minus 5° of the desired value for more accurate metering of the fuel, and since overheating the oil represents a loss in heating steam and gives the possibility of fouling the heaters from coking.

Where the load on the boiler unit fluctuates widely, a better and more responsive control of oil temperature is warranted than in a plant that operates for hours at a time at a substantially constant load. Similarly for reliability and continuity of service, the small industrial plant may keep ready one more pump than is required for the load, whereas a public utility might spend considerable money to obtain automatic starting of additional pumps to save the power cost of operating continuously any more equipment than is absolutely necessary. The determination of what should be done can be established only by a consideration of the initial cost for the equipment as compared to the possible saving.

An article on the subject of heavy oil pumping and heating equipment is not complete without a word of caution to those making their first installa-

(*Please turn to page* 162)

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Manufacturers' Activities

Penn schedules Series of Western control Meetings

A NEW SERIES of educational shows has been scheduled by Penn Electric Switch Co., Goshen, Ind., to commence in Tulsa on September 24. This series has been created to provide a visual demonstration in the use, construction, installation and servicing of automatic controls, employing giant, operating models, colored slides, charts and system demonstrators.

The current show is patterned after previous ones to some extent, drawing on the experience Penn has gained in the 17 years the company has pioneered these instructional aids to servicemen. The new series, however, includes the latest information and service helps, with meetings arranged and sponsored in each city by local jobbers. R. H. Luscombe, general sales manager, points out that each meeting will give the most thorough demonstration possible in a single evening. After the regular session, individual installation problems will be discussed.

Present Penn Heating Control Shows are to be held in Tulsa, September 24; Oklahoma City, September 27; Dallas, October 2; Austin, October 8; San Antonio, October 11; Houston, October 17; Shreveport, October 22; Little Rock, October 25. Similar sessions on refrigeration controls will be held in the same cities the night after the heating meetings.

York-Shipley Booklet on steam Generators

"STEAM IN A PACKAGE" is the title and theme of a booklet, prepared by York-Shipley, Inc., York, Pa., on its line of 15 oilfired steam generators, for low and high pressure operation. A gatefold page contains a large, cut-a-way view of a typical model, illustrating interior construction and flue passes. Other illustrations show actual installations, boiler assembly line and views of laboratory and factory testing that is performed on the units.

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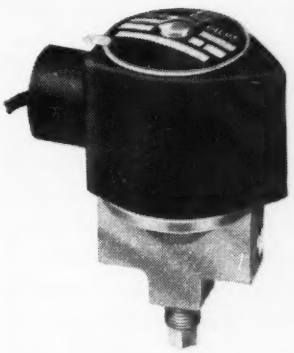

Honeywell Delayed Opening Oil Valve

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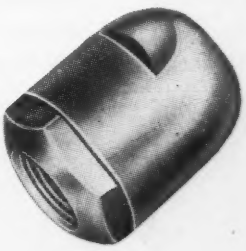
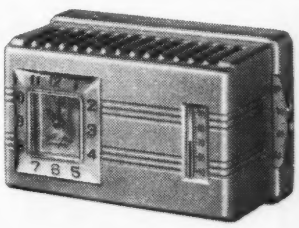
Honeywell Dribble-Proof Oil Valve

The inexpensive V5000 Dribble-Proof Valve withholds oil from nozzle until pressure is right for atomizing, shuts off oil when pressure starts to drop on shutdown. This means that it stops the dribble that causes the trouble.



Honeywell Chronotherms



The Honeywell Chronotherms are the most sensitive, most accurate thermostats ever built! They *automatically* lower the temperature at night to save fuel, *automatically* raise it in the morning. And that offers you a mighty important profit opportunity. Because a recent survey shows that 3 out of 4 people with thermostats raise and lower temperature settings every day. And most of them have to do it the old-fashioned way—by hand! Every one of these people is a ripe prospect for a Honeywell Chronotherm.

For full facts and literature on the products above, write today to Minneapolis-Honeywell, Dept. FH-9-168, Minneapolis 8, Minn.

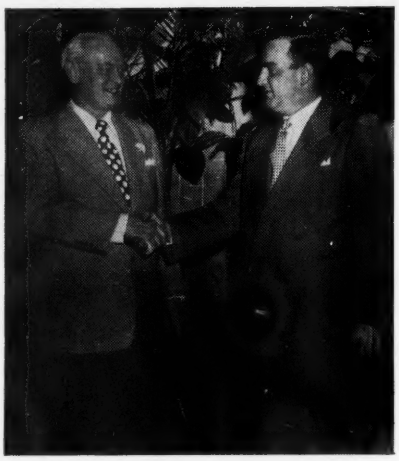
MINNEAPOLIS **Honeywell**

First in Controls

operating advantages are enumerated, along with a description of the features that make "one man maintenance" possible. These include a hinged rear door and refractory baffle for access to fire tubes, a clasp on the front burner door opening to allow inspection of burner and ignition system or removal of burner parts for cleaning, with the entire front head removable for access to the combustion chamber. Easy entry to the boiler interior is provided by large manholes. Burner features, such as the Iris shutter and metering oil pump, also are pictured and described, with other components presented in an explanation of how Steam Pak generators perform "every step of the job." A specifications and ratings table appears on the back cover.

Arthur Bierman named President of Liquidepth

ARTHUR BIERMAN has advanced to the presidency of Liquidepth Indicators, Inc., Long Island City 1, N. Y., and his father, Dan Bierman, has become



Dan *(left) and* **Arthur** *(right) exchange mutual congratulations on advancing to chairman of the board and president, respectively, of Liquidepth Indicators, Inc.*

chairman of the board. Arthur returned to the company in 1946 as vice-president, after 4 years of service with the Marines in the Pacific.

On September 1 the company, which manufactures Petrometer distant reading gauges, Liquidepth indicators and controls completed removal of its general offices and manufacturing facilities to a new location at 43-22 10th Street, Long Island City, N. Y. A 10-year lease has been executed for the entire building, which will provide better than 50% more space and improved accommodations for production and storage. The firm had been located in the Star Building for the past 17 years, but increased demand dictated removal to larger quarters.

Brown Instrument adds sales Engineers

A GROUP of 33 sales engineers recently completed a course in industrial instrument maintenance and repair at the school operated by Brown Instruments Div., Minneapolis-Honeywell Regulator Co., in Philadelphia.

The men and the cities to which they have been assigned are: Albert F. Sommer, New York City; John E. Tutty, East Orange, N. J.; James V. Collins and Robert F. Trump, Boston; Walter J. Loughran, Providence; George S. Raab, Hartford; John M. Caylor and George Stiftinger, Philadelphia; David Y. Drummond, Wil-

A QUICK TIGHT CONNECTION FOR FUEL OIL DELIVERY

GAS
OIL
AIR

SAFE-FILL
TAPERED
NOZZLE PLUG

Made in U.S.A.—Reg. U.S. Pat. Off. No.

Prevents Dangerous Pressure

SAFE FILL tapered nozzle plug is the only approved and patented tight connection on the market — it has a safety valve that pops off at approximately 5 lbs. P.S.I. prevents rupturing oil tank.

●

SAVES TIME & LABOR, permits faster filling, drivers are able to cut down the pumping time by as much as 50%.

●

ELIMINATES blow backs, spillage complaints, ruined lawns and shrubbery.

●

ALWAYS AT HAND, it slips snugly into any 1⅜" O. D. rigid nozzle tube, remains there permanently. (1¼" or 1½" I.P.T. nozzle tubes can be bought separately) Fits all types of Fill Boxes, fill pipes and fill caps. Needs no tools, no other pipe fitting or wrenches.

Prices are F.O.B. New Haven, Conn.

SOLD BY ALL LEADING JOBBERS

Plug only	Plug including safety valve	Plug, safety valve and 1¼" or 1½" nozzle tube
$2.00 ea.	$4.00 ea.	$6.00 ea.

Indispensable with Ventalarm

SPEEDS UP VENTING, safe fill tapered nozzle plug is especially developed for use with VENT-ALARMS, it allows pumping speed to be stepped up.

●

TIGHT CONNECTION eliminates excess air to be sucked in through fill pipe while tank is being filled.

●

INEXPENSIVE AND STURDY safe-fill tapered nozzle plug is made of synthetic neoprene rubber especially designed to stand up under long, hard usage-in contact with oils and gasoline and similar liquids.

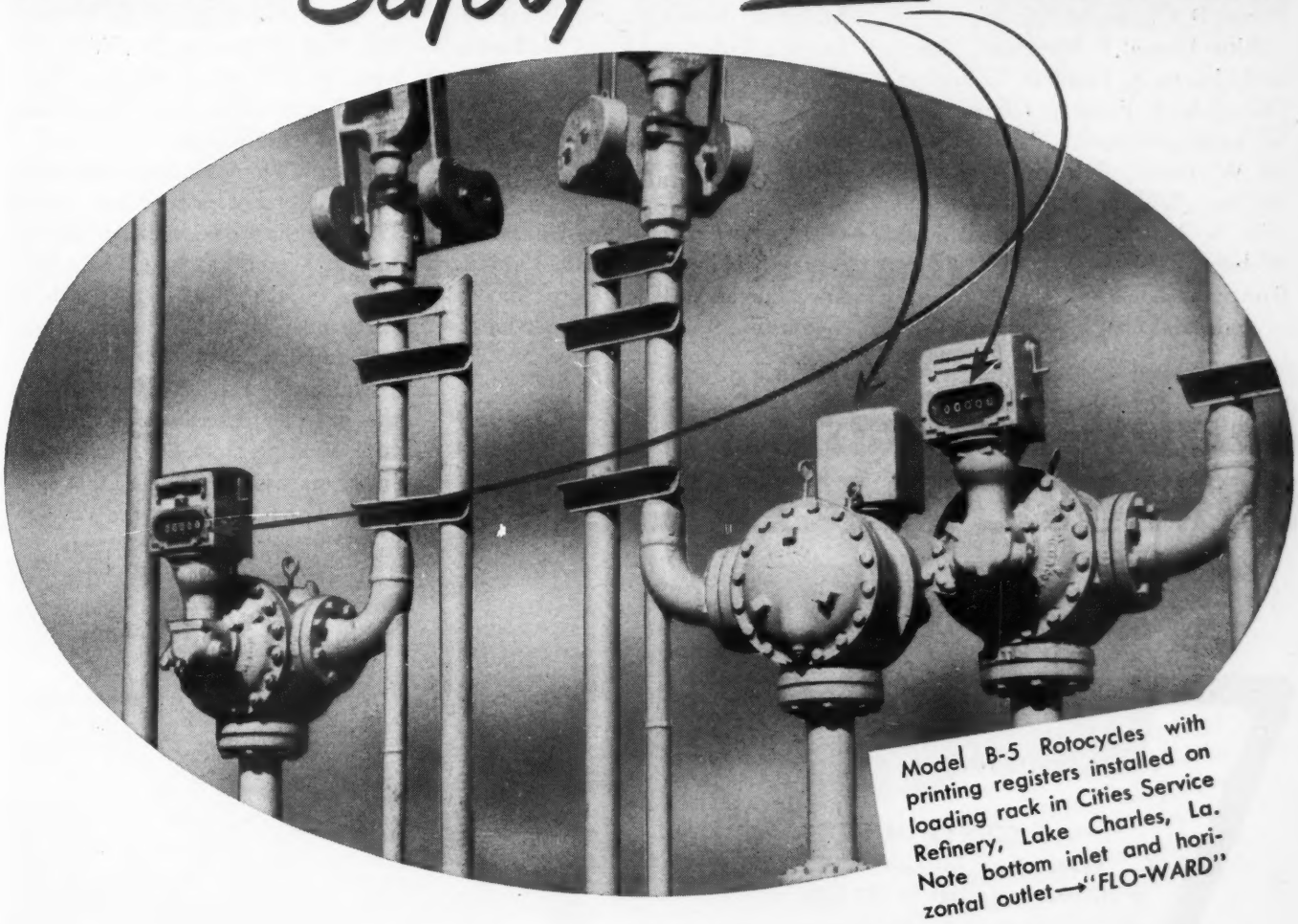
●

IT WILL PAY for itself the first week. Equip all your fuel oil trucks with a safe fill tapered plug. Order today — do it now. We guarantee complete satisfaction.

Prices Subject to Change

MANUFACTURED BY GASOILAIR EQUIPMENT CO. P.O. BOX 768, 75 BREWSTER ST. NEW HAVEN, CONN.

THERE'S *Safety* IN THESE NUMBERS



Model B-5 Rotocycles with printing registers installed on loading rack in Cities Service Refinery, Lake Charles, La. Note bottom inlet and horizontal outlet→"FLO-WARD"

IDENTIFY OR STOP LOSSES, SAFEGUARD PROFITS

ROCKWELL

ROTOCYCLE

METERS

Measure Well with Rockwell

Let Rockwell Rotocycle meters "police" for your accountants the gallonage on your loading racks. They'll catch the leaks, the unauthorized withdrawals and inaccurately calibrated tank compartments that cut your margin of profit.

With Rotocycle meters your engineers get the highest degree of positive displacement measurement accuracy. And the free running, "Flo-ward", all-revolving measuring mechanism offers less resistance to line flow. You can use smaller motors on your pumps, save on electricity.

To get all the advantages of metered loading racks—get Rotocycles. They'll save money for you now, earn money in the years to come. *Write for bulletins.*

Rockwell makes every type and size of petroleum meter. We serve the industry from wellhead to ultimate customer's tank. There is no more complete line.

ROCKWELL MANUFACTURING COMPANY

PITTSBURGH 8, PA.

ATLANTA BOSTON CHICAGO COLUMBUS HOUSTON KANSAS CITY
LOS ANGELES NEW YORK PITTSBURGH SAN FRANCISCO SEATTLE TULSA

mington; Roy W. Freeman, Atlanta; Charles O. McAtee, Jacksonville; James T. Emerson, Greenville, and Robert D. Clarke, Mobile.

Also, Donald P. Moreland, Cleveland; Joseph A. Hamblin, Columbus, Ohio; John E. Flaherty, Dayton; Jack W. Larsen, Wilton A. Bass and Vendel W. Immel, Detroit; Thomas H. Jenkins, William H. Johnson and John L. Matter, Chicago; Paul K. Webster, Indianapolis, and Philip A. Barker, St. Louis.

And, Malcolm L. Johnson, Twin City; Warren G. Hardy, Carl T. Stevens and Herman R. Hampton, Houston; Bernard J. Alberts and Julius H. Matherne, New Orleans; George W. Leggett, Tulsa, and Frank G. Fischer and Michael J. Joncich, Los Angeles.

Winners announced in Oil-O-Matic Sales Contest

COMPLETION of the "June Unit" sales contest held by Williams Oil-O-Matic Div., Eureka-Williams Corp., Bloomington, Ill., resulted in the announcement of the following winners: Americo J. Taverna, Taverna Coal Co., Prince's Bay, Staten Island, N. Y., 72,300 points; J. G. Brinkerhoff, Fuel Oil Service Co., Waterloo, Iowa, 42,800 points; Gordon Peterson, Zenith Sales Co., Eau Clair, Wisc., 37,700 points.

Taverna's points alone, when translated into retail prize value, exceed $550 and the top 60 salesmen, averaging 17,000 points each, will have their choice of almost $10,000 worth of merchandise from a catalog listing 1800 items.

Mr. E. H. Davidson, Oil-O-Matic sales manager, described the volume of sales resulting from the campaign as highly gratifying and stated that since many dealers reported the development of a number of prospects that were, for one reason or another, not sold before the end of the campaign, that larger than usual July and August sales are expected.

The campaign, which ran from May 28 through July 7, was based on a point system with prizes to be awarded to dealers and salesmen in direct proportion to their individual sales.

Pullman Sales Corp. wins Approved Product Award

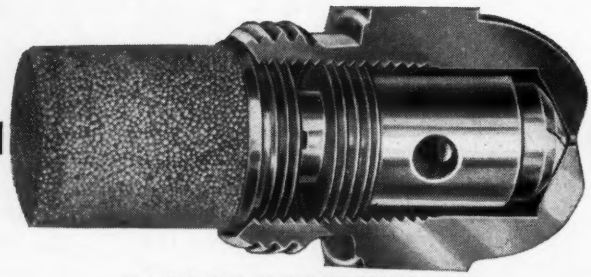
THE AUTOMATIC QUICK-DISCONNECT COUPLING, which is a feature of the heavy duty vacuum cleaners manufactured by the Pullman Sales Corp., Boston, Mass., has won for the company an Approved Product award from the American Society of Industrial Engineers. The coupling is employed in connecting the suction hose to the body of the cleaner.

Wheelco establishes Canadian Affiliate

WHEELCO INSTRUMENTS OF CANADA, LTD., Toronto 12, Canada, has been established to handle Canadian operations of the Wheelco Instruments Co., Chicago, Ill., and will have merchandising facilities for the company's entire line of industrial recorders, controllers, indicators and combustion safeguards. R. A. Schoenfeld is president of the affiliate; Francis Beaupre, who has been in charge of the Toronto district office for the past 4 years, is

(*Please turn to page* 110)

Nozzles Clogging? Try the New MONARCH NOZZLE FILTER



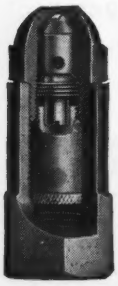
5 POINTS OF SUPERIORITY

1. **Rugged and compact. Will filter out very fine particles. Equivalent to 200 mesh screen.**
2. **Removes all the dirt from the oil, thereby cutting service calls because of plugged nozzles. Especially recommended for fractional gallonage nozzles.**
3. **No messy felt or numerous plates to play with.**
4. **Eliminates the possibility of screen buckling which can occur in ordinary strainers.**
5. **Inexpensive. Costs no more than a standard 200 mesh screen strainer.**

This new filter is available in limited quantities only, because of the present copper situation. Specify H 597 when ordering.

MONARCH BURNER NOZZLES Preferred Because:

1. Each nozzle is individually tested and checked for capacity against the flow of a calibrated master sample. Capacity tolerances are as low as plus or minus 2½%.

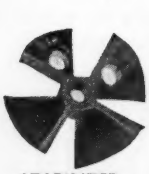


2. Standard nozzles will fire most gun type high pressure burners satisfactorily. (Special series are also available for burners requiring specified spray characteristics.)

MONARCH Air Cones And Stabilizers Have Proved Their Superiority

Best results are obtained by use of air cone and stabilizer together. Many manufacturers use this equipment. Pulsation can usually be overcome by using our recommended "Anti-Pulsation" equipment.

Write for circular No. 62250



STABILIZER

AIR CONE

Write for Catalog D

MONARCH MFG. WORKS, INC.

2503 E. ONTARIO ST., PHILADELPHIA 34, PENNA.

European Distributor: A. Coutau, Rue de la Scie No. 16, Geneva, Switzerland

girl dispatches three trucks in twenty minutes!

... simultaneously, with the help of remote electrical transmission system and two-way speaker. And she keeps both Dispatch and Accounting happy with accurate, printed records!

SMITHway 77th ANNIVERSARY 1874 - 1951

DEPENDABILITY THROUGH RESEARCH AND ENGINEERING. *To Petroleum Meters, the Meter Division of A. O. Smith devotes the same high standards of research and engineering which have distinguished all of the products of this firm for 77 years.*

This small plant is typical of a number of recent installations of SMITHway remote registering ticket printing systems. One rack with four S-35 350 G.P.M. meters can load two trucks at one time, another rack with two S-35 meters handles the third truck. Volume of business with limited loading rack space requires rapid dispatch of the trucks and the SMITHway system gets loading done quickly, accurately with clean, printed tickets and complete control by one girl order clerk.

There are many other "remote" installations, some using as many as 23 meters and printers. See National Petroleum News of 1/26/49; 3/8/50 and 6/13/51. Send now for complete information on how you can use the SMITHway remote registering ticket printing system to speed deliveries with less expense.

SMITHway meters are made in various sizes with *functional* equipment and accessories to suit varying requirements. All are built on the original Smith Rotary Principle, *the design that revolutionized the meter industry.*

A.O.Smith
Corporation
METER DIVISION

FACTORIES: 5715 SMITHWAY STREET, LOS ANGELES 22, CALIF. • P. O. BOX 500, SUCCASUNNA, N. J.

Offices: New York, Chicago, Houston. Canada—Toronto, Vancouver . International Division—Milwaukee 1, Wisconsin

vice-president and secretary and E. J. Stevenson, vice-president, treasurer.

Three district agencies, Lachapelle & Archambault, Ltd., Montreal; Wells H. Morton Co., Ltd., Calgary and Instrument Service Laboratories, Vancouver are offering sales and service in their respective territories.

Radiant Heating use in Agriculture studied by B & G

ONE OF THE PROJECTS being studied at the Morton Grove, Ill., research laboratory of Bell & Gossett Co. is the feasibility of stimulating agricultural production by warming soil with forced hot water heat. By installing pipe coils several inches below the depth a plow would reach, circulated hot water could warm the earth sufficiently to permit planting crops considerably ahead of the regular planting season. This, conceivably, might allow an extra harvest, or, in case of some crops, marketing time might be advanced ahead of regular crops.

This, in effect, would be "heat irrigation," explains R. E. Moore, B & G vice-president, operating on a principle similar to that used in hot water radiant panel heating, with the coils forming a closed circuit through which the water, heated by a boiler, would be forced by a booster pump. He added that in Iceland natural warm water wells have been used for similar purposes.

Fulflo FILTERS
REG U.S. PAT. OFF.

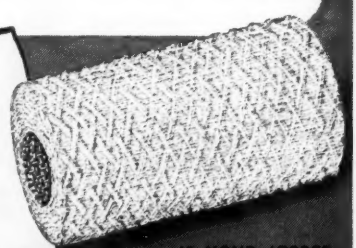
INVISIBLE ENEMIES

No matter how high the quality of heating oil . . . or how carefully it is handled, it contains harmful suspended solid impurities. These tiny impurities, some visible but mostly of sub-visual size, can cause costly service calls.

- The average unaided human eye can distinguish particles down to about 40 microns (.0015 in.) diameter. But impurities smaller than this can cause fouled points, worn pump bearings, stuck valves and restricted or clogged nozzles. These microscopic impurities pass freely through any strainer and can be removed only by *filtration*.

- FULFLO FILTERS remove these invisible enemies. Their exclusive HONEYCOMB FILTER TUBES give true depth filtration of precision controlled density. In one quick trip through the filter every drop of oil is filtered again and again, finer and finer, until sub-visual impurities which cause costly service calls are removed.

FULFLO FILTERS lead all others in sales because they lead in performance — give better protection. They lead because for many years alert Dealers everywhere have found them the best insurance against all Oil-Burner troubles arising from invisible impurities.



IF YOUR JOBBER CAN'T SUPPLY YOU WRITE OR WIRE US

COMMERCIAL FILTERS CORPORATION
BOSTON 27, MASSACHUSETTS

Steinen Bulletin gives Details on flame Mirrors

WM. STEINEN MFG. CO., Accessories Div., Newark, N. J., has announced the publication of a new bulletin describing the particular advantages the Steinen flame mirror, and explaining why a mirror should be used on every installation to examine the flame, the ignition, the position of the electrodes, and to check for afterdrip.

Jefferson Group to hold Banquet

THE EIGHTH ANNUAL BANQUET of the Quarter-of-a-Century Club of the Jefferson Electric Co., Bellwood, Ill., will be held in the Crystal room of the Palmer House in Chicago on September 25.

J. M. Brennen, president of Jefferson, will award gold watches to ten new members of this group. The 71 members of the club have a combined service record of 2,087 years. James C. Daley, Chairman of the Board, will be on hand to congratulate each member and to reminisce.

Timken Regional Managers Meet

A TWO-DAY MEETING to discuss sales plans and promotional activities for the last half of 1951 was held in Jackson, Mich., on July 16 and 17 by the regional managers of Timken Silent Automatic Div., Timken-Detroit Axle Co.

T. A. Crawford, general manager of the Division, delivered a speech concerning the future availability of fuels for domestic heating in which he stated that all present indications pointed toward a normal supply.

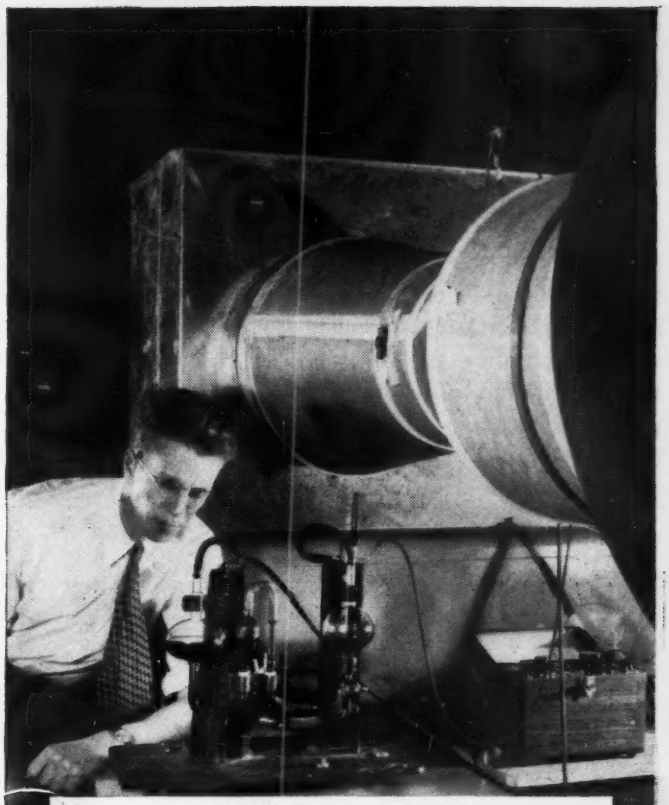
Projected plans for sales promotion include extensive consumer advertising in national magazines and in

You don't want any "bugs" in a furnace!

Delco Appliance's "heat laboratory" combines scientific ingenuity and practical knowledge – to develop top quality products.

A new "counterflow" furnace is put through its paces. Its performance will be recorded by precision instruments.

Even chemistry is brought into furnace tests. Here a zinc plating solution is tested for use on many furnace parts.



Efficiency test is given to an oil furnace – the heated air flowing through the furnace is measured by instruments inside the projecting venturi tube.

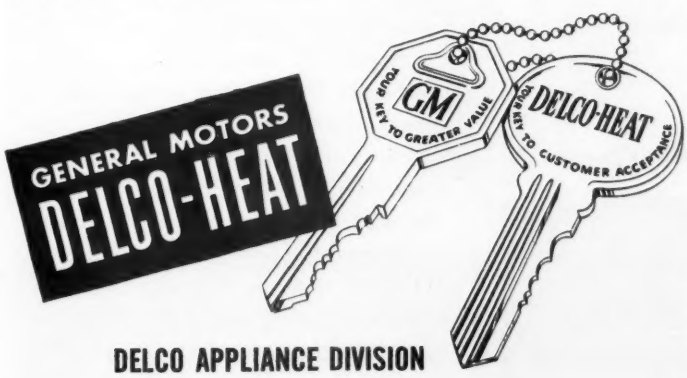
It takes plenty of new ideas to produce an outstanding new product – and the engineers at Delco Appliance certainly come up with their share! But turning these ideas into finished products involves a lot of hard work. And that's where the Delco Appliance "heat laboratory" enters the picture.

For in the heat lab, working pilot models of furnaces, boilers or burners – built from the engineers' blueprints – are put into operation and are tested, worked over and modified. They are given rough treatment, too – far more rigorous than a heating unit ever receives in a home heating system. And only when the engineers have all the "bugs" ironed out of the units will they go into assembly line production.

The real importance of all this testing and developing can be seen in every heating unit in the Delco-Heat Line. Their dependable, economical operation, their wide range of capacities, complete adaptability and easy installation have all been developed through the work of the Delco laboratory.

The unexcelled engineering features of the Delco-Heat Line – the competitive prices, and the selling assistance he gets – all enable the Delco-Heat Retail Distributor to give his customers today's top values in automatic heating. For information on a Delco-Heat franchise, send the coupon below.

YOUR KEYS TO GREATER PROFITS



DELCO APPLIANCE DIVISION
General Motors Corporation, Rochester 1, New York

DELCO APPLIANCE DIVISION, Dept. FO-29
General Motors Corporation, Rochester 1, N. Y.

Please send me information about a Delco-Heat franchise.

Name.....

Firm Name.....

Street.....

City..... *Zone*..... *State*.....

newspapers plus ads in key marketing papers, all included in a factory-paid program.

Majestic Incinerator can be used as tie-in to heating Sale

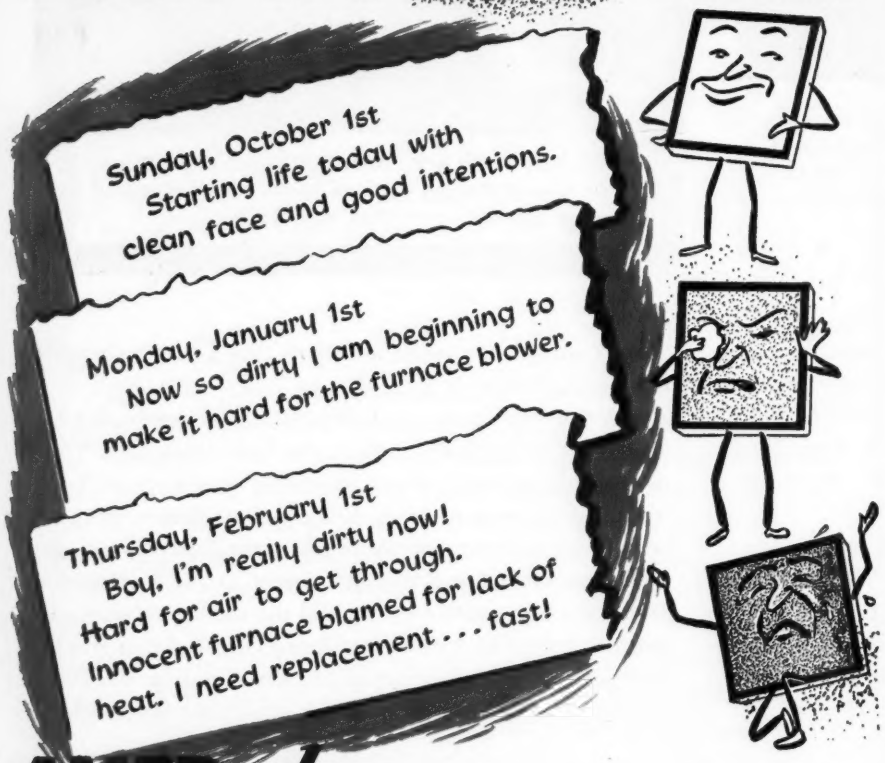
SALE OF DOMESTIC INCINERATORS as tie-ins with the sale of oilfired systems is becoming increasingly popular with dealers, according to Majestic Co., Huntington, Ind. The company this year is using national advertising on the units and is making mats available to dealers for newspaper advertising to develop local prospects.

The Majestic incinerator burns trash, wastepaper, rubbish and garbage, and is constructed so that a downdraft keeps air circulating through the refuse to act as a drying agent, even for wet garbage, and hasten burning. Contents of the incinerator need be burned only once or twice a week, or whenever the unit is full.

When installed as shown in the illustration, it connects easily to the furnace flue, without impairing heating efficiency. The photograph is of a typical small home installation, demonstrating Majestic's method of attaching the incinerator to the flue just below the smoke pipe of the furnace. In this particular installation, the unit was attached to the cleanout opening provided in the flue.

Since many cities and villages have enacted ordinances prohibiting the burning of rubbish or garbage in the open, the indoor incinerator offers a happy solution to this problem.

DIARY of a DIRTY FILTER


Sunday, October 1st
Starting life today with clean face and good intentions.
Monday, January 1st
Now so dirty I am beginning to make it hard for the furnace blower.
Thursday, February 1st
Boy, I'm really dirty now! Hard for air to get through. Innocent furnace blamed for lack of heat. I need replacement . . . fast!

AMER-glas to the rescue!

Urge your customers to replace dirty filters regularly with new AMER-*glas* Filters. Inexpensive. Clean to handle, no prickly slivers. AMER-*glas* is *the* filter for satisfied customers . . . a new source of regular profit to you.

AAF

Send today for proof of AMER-glas profits.

An *Engineered* product of

American Air Filter

COMPANY, INC.

124 Central Avenue • Louisville 8, Kentucky

General Refractories opens Chicago sales Warehouse

A NEWLY CONSTRUCTED Chicago sales warehouse has been opened by the General Refractories Co., Philadelphia, Pa., supplementing similar facilities operated in New York, Detroit and Los Angeles. The Chicago building, located at 4242 West 45th St., contains 10,000 sq. ft. of storage space for a complete line of refractory specialties, industrial insulations and related products. It incorporates latest material handling features and has heated storage spaces for wet cements and mortars.

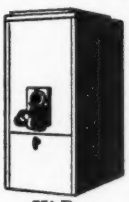
Roger W. Braden is manager of the warehouse, transferring from New York where he had managed the company's warehouse. Previously he held a similar position at Detroit.

Drew M. Thorpe, vice-president of General, described the Chicago warehouse as filling a growing need for immediate delivery to consumers of less than carload lots of miscellaneous refractory products.

AGAIN in '51

MORE FURNACE MANUFACTURERS THAN EVER BEFORE WILL USE THE KRESNO-STAMM *P.A.G. *Ball Flame* BURNER

This year more manufacturers than ever before—at least 59—will use the Kresno-Stamm P.A.G. Ball Flame Burner. For every application they have overwhelmingly accepted the Ball Flame as the best and most versatile unit.



Hi-Boy

HI-BOY

More manufacturers of Hi-Boy furnaces will use the Ball Flame Burner.

Gravity

GRAVITY

More manufacturers of Gravity furnaces will use the Ball Flame Burner.

Counterflow

COUNTERFLOW

More manufacturers of Counterflow furnaces will use the Ball Flame Burner.

Utility

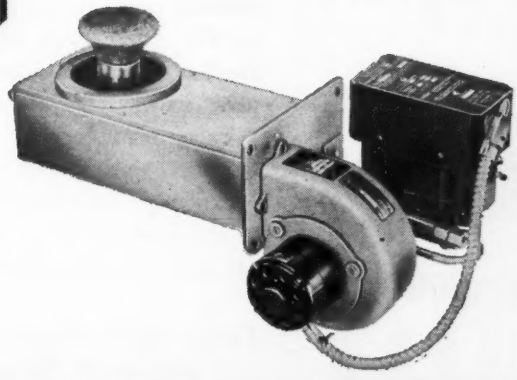
UTILITY

More manufacturers of Utility furnaces will use the Ball Flame Burner.

More manufacturers choose the versatile Kresno-Stamm Ball Flame because

- ✓ It costs less than a gun type burner.
- ✓ It operates more efficiently at capacities up to 1 G.P.H.
- ✓ It costs less to install.
- ✓ It requires no combustion chamber.
- ✓ It requires no stack relay.
- ✓ It is a profitable addition to their line of gas burners and gun type oil burners.

The Kresno-Stamm P.A.G. Ball Flame is your best bet, too. Write today for specifications.



*Pressurized Air Gravity

KRESNO-STAMM MFG. CO. (America) Inc.
PALISADES PARK, N. J.
Canadian Affiliate: Kresno-Stamm Mfg. Co. (Canada) Ltd.
1452 Drummond Street • Montreal, P. Q.

Lamneck invites comparison

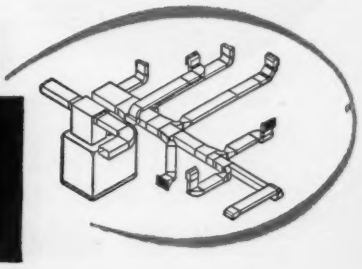
the best costs less..

LAMNECK	
No. 701 UNIVERSAL BOOT	
6" 10"x3¼"	$1.19
Net to dealer at his jobbers	

Right down the line Lamneck fittings invite comparison . . . in design, quality, ease of installation and price. This 701 Universal Boot is typical. Manufactured from premium 28 gauge steel, and equipped with patented snap lock connectors, it's built to help get the job done better, faster, and with more profit to you.

LAMNECK MAKES A COMPLETE LINE OF FURNACE PIPE & FITTINGS

Simplenic SYSTEM
T.M. Lamneck
FURNACE PIPE & FITTINGS



Another Great C&L Product

Write for free comprehensive Lamneck Catalog and the industry's latest book "Standardized Fittings."

CLAYTON & LAMBERT MFG. CO.
1701 DIXIE HIGHWAY LOUISVILLE 10, KY.

H. C. Little moves New Jersey Office

THE FACTORY REPRESENTATIVE, W. R. McCurdy of the H. C. Little Co., Inc., San Rafael, Calif., has announced the removal of his office and showroom from 110 Edison Place, in Newark, to 451 William St., East Orange, N. J. The warehouse has been removed to Clifton, N. J., from the same address.

Mr. McCurdy predicts that these changes in location will enable his organization to provide overnight service to all points in New York State.

Deep Rock Oil office moving to Tulsa

THE DEEP ROCK OIL CORP. is moving its general sales office from Chicago to Tulsa, Okla. Transfer of personnel is underway, but the entire move will not be completed until September. The announced purpose of the change is to headquarter all major divisions of the company in one location. The sales office is the only major company division not already in Tulsa.

The names of two men who have recently become associated with the company have also been announced. Burt A. Brokaw, formerly director of the petroleum division, Minnesota Dept. of Taxation, is joining the company in the newly-created position of jobber operations specialist, while W. J. Fuchs, formerly a vice president of Winius Brandon advertising agency in St. Louis, has joined the Marketing Div. as advertising and sales promotion manager.

Do Your PRESENT PRECAST CHAMBERS Give You ALL these Advantages?

1. Low initial cost.
2. Low installation cost — only 5 pieces to assemble.
3. K-factor equal to insulating brick.
4. Excellent performance with either high or low pressure burners.
5. Scientifically packed to prevent breakage.

. . . if the answer is NO -- contact us NOW!

KOLB REFRACTORIES COMPANY Meadow & Jackson Sts. Philadelphia, Penna.

KolbKast Insulated Chambers

Perfex conducts first Classes for Distributors

A SERIES of classes for distributors, to be held in the near future, was inaugurated recently in Chicago by the Perfex Corp., Milwaukee, Wisc. The schools are cooperative ventures between Perfex and its distributors. Classes are held on three successive evenings from 7 to 10 P. M. The course covers fundamentals in electricity, actuating devices, control systems and field service problems. Films, in both color and black and white, text-books and demonstration boards are used to aid in instruction.

It is planned to hold future sessions for small groups in the distributor's establishments, during which heating systems will be analyzed by both formal study and practical work.

Automatic Burner buys Eagle Chemical Company

JOSEPH HEARST, president, Automatic Burner Co., Chicago 12, Ill., has announced purchase of the Eagle Chemical Co., Inc., Joliet, Ill. Mr. Hearst also has become president of this company, which ABC acquired in May.

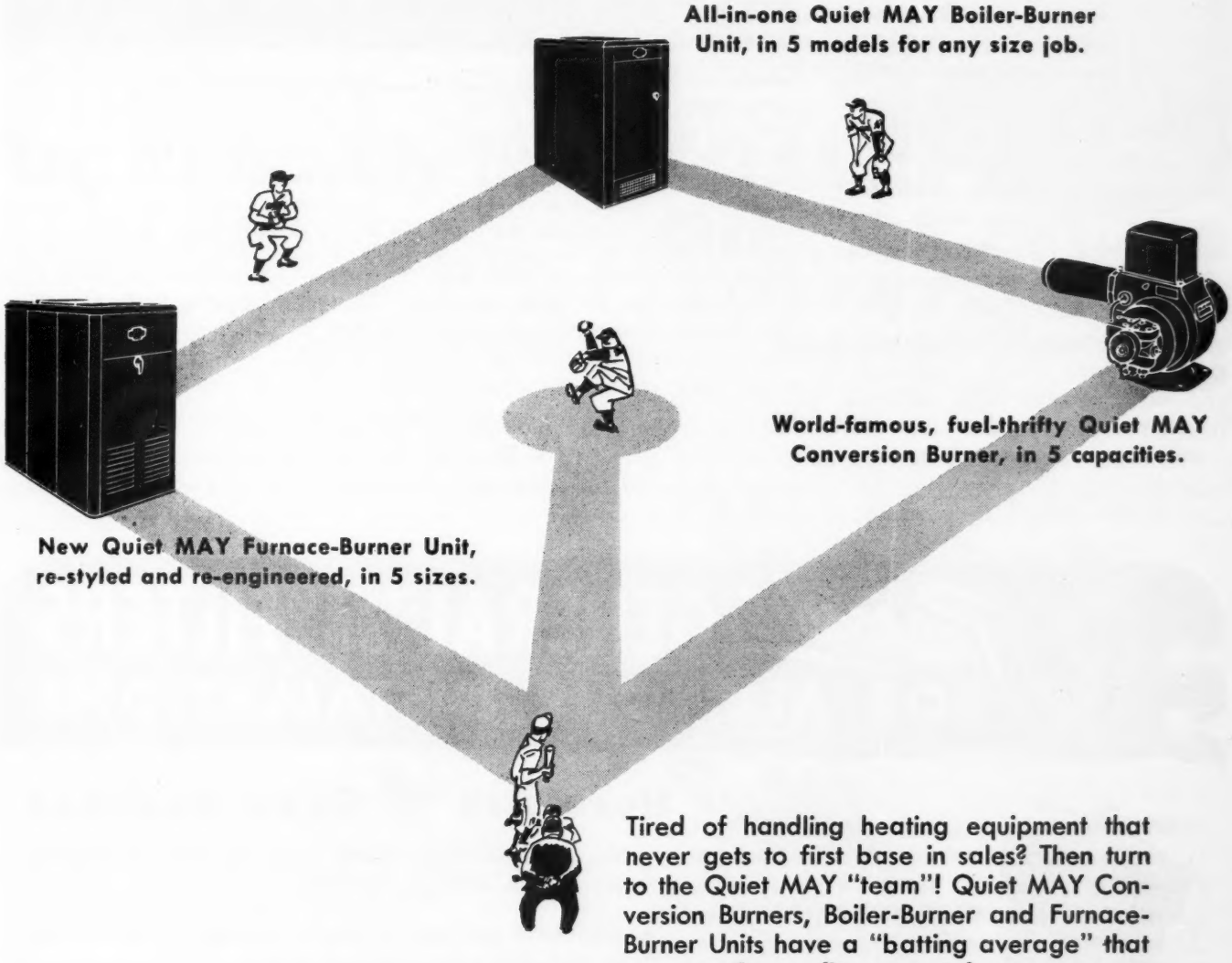
Eagle manufactures silica gel, an absorbent that is used in a method of packaging Government orders. It is a moisture-absorbing material that has many merchandising possibilities.

Tank Truck Meter shown in Bowser Catalog

COMPLETE DATA on the new, lightweight, 70 gpm, Xacto meter is contained in Bulletin 711-70 published by Bowser, Inc., Fort Wayne, Ind. Cutaway views show the meter's sys-

the bases are loaded

with profits for you!


All-in-one Quiet MAY Boiler-Burner Unit, in 5 models for any size job.
World-famous, fuel-thrifty Quiet MAY Conversion Burner, in 5 capacities.
New Quiet MAY Furnace-Burner Unit, re-styled and re-engineered, in 5 sizes.

Tired of handling heating equipment that never gets to first base in sales? Then turn to the Quiet MAY "team"! Quiet MAY Conversion Burners, Boiler-Burner and Furnace-Burner Units have a "batting average" that can cop the profit pennant for you, season after season.

Quiet MAY's quality reputation is 27 years long and 5 continents wide. A Quiet MAY dealership could well be what your business needs now!

Phone MUlberry 8585, wire or write for franchise details.

May Oil Burner Division of Gerotor May Corporation
Box 86, Balto. 3, Md.

QUIET MAY OIL BURNER

OHI

fueloil & oilheat

tem of measurement by positive displacement, the absence of metal to metal contact in the piston arrangement, and the operation of the integral air separator. The various design features which are responsible for the meter's sustained accuracy and the efficiency of the air separator are explained in detail.

Trend to zoned Heat seen in new Offices

THE COMPLEXITY of heating needs in newer office buildings is creating a significant trend toward zoned heating, according to Arnold Michelson, vice-president, Minneapolis - Honeywell Regulator Co., Minneapolis, Minn. He pointed out that major advances in commercial construction make office buildings better planned and more efficient, but many of these features, such as continuous strip windows, stores and restaurants included as revenue producing outlets, auditoriums and meeting rooms, create problems of equal heat distribution.

Few of the big buildings today are erected without air conditioning, Mr. Michelson continued, providing a stimulus for automatic temperature and humidity control and nearly all have been divided into heating zones with respect to size, exposure and usage. An outer zone of office areas

Twenty-two *Standard Oil Co. of Ohio service men recently spent a day in Cleveland at the Perfection Stove Co. attending a special Superfex Oil Furnace Service School. The school, conducted by E. W. Connors, Perfection's new furnace service mgr., featured vaporizing and pressure types of burners. Joseph Donato, Ohio State Burner Sales Mgr. for Sohio, and Elton Barnes, Burner Service Dept. Mgr., accompanied the group. The following Sohioans were present when the service school convened: Richard Traxler, E. Edwin Misele, S. W. Duvall, J. A. Crowe, John Nieset, Jr., R. R. Armstrong, Harry A. Cutting, Jr., Don R. Kinkley, M. V. Brelsford, Virgil W. Mick, Sr., R. A. Brust, R. S. Whitten, Kenneth Edwards, E. A. Mayer, Sylvan Jodry, Jack Kugele, George E. Barker, Rudy Cannaley, John W. Mathis, Carl E. Cottrell, William K. Batie and C. Blanton.*

Rx Prescribe GENERAL FUEL OIL FILTERS
FOR ALL YOUR INSTALLATIONS

Why? Here Are 4 Good Reasons

DELUXE MODEL 2A-300
FOR THE BIG JOBS

MASTER MODEL 2A-700
FOR MEDIUM NEEDS

STANDARD MODEL 1A-25
FOR SMALL HOMES,
HEATERS, ETC.

1 There's a GENERAL FILTER for every fuel oil filtering job — large, medium, or small.

2 GENERALS are easy to install. All that's needed is one wrench and a few minutes' work.

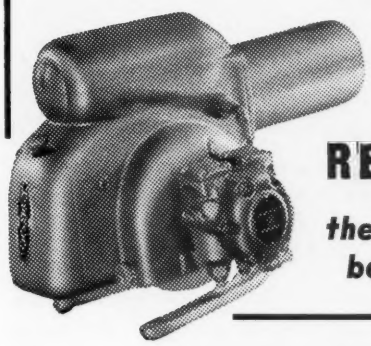
3 It takes just two minutes to insert a GENERAL Replacement Cartridge — and every GENERAL installed means cartridge sales for years to come.

4 Customers *WANT* GENERAL FILTERS because they eliminate shut-downs due to clogged nozzles. Costly service "call-backs" are minimized, too.

GENERAL FILTERS now distributes CLEAN RIGHT SOOT REMOVER—Certain-safe for *all* heating plants. Tell your customers about it.

GENERAL FILTERS INCORPORATED
GENERAL FUEL OIL FILTERS
12890 WESTWOOD AVE.
DETROIT 23, MICHIGAN
CANADIAN FACTORY BRANCH: CANADIAN GENERAL FILTERS, LTD., 2679 DANFORTH AVE., TORONTO 13, ONTARIO

If you're gunning for Oil-Burner Sales . . . gun with the



HERCO

RESIDENTIAL

the oil-burner that's best by fire test!

Yes, it's factually TRUE

. . . that the HERCO RESIDENTIAL (and every other Herco burner) is given our "A to Z" *factory fire test* before pronounced fit to fill your order.

. . . that every piece of metal that goes into the assembly of a HERCO RESIDENTIAL is a grey or malleable iron casting.

. . . that every Herco oil burner is *precision-machined* for best performance.

. . . that there is interchangeability of parts among all models in the complete HERCO line.

. . . that every HERCO oil burner will give years of trouble-free service. (We can back this statement with many actual case histories.)

HERCO SERVICE COSTS ARE LOWER THAN ANY OTHER ON THE MARKET.

Find out why!

Send for these three folders, describing in detail the Herco family of fine oil burners. If you are interested in selling dependable burners with a profit you can pocket for keeps (without costly service calls) then write today.

HERCO
The Oil-Thrifty
OIL BURNER

HERCO OIL BURNER CORPORATION
LANCASTER, PA.

NOW! SAVE UP TO 25%

on . . .

COAL . . . OIL . . . *and* OTHER TYPES *of* FUEL *with Improved, New*

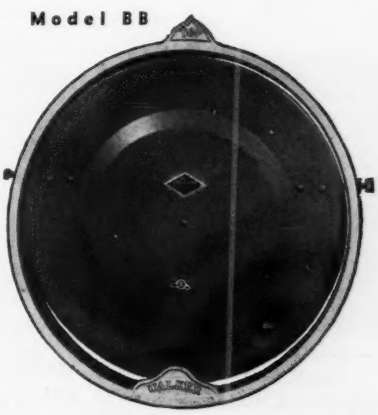
WALKER

FUEL-SAVER DRAFT REGULATORS

Over 7 Million Now in Use!

Why not help *your* customers save as much as one-fourth on fuel costs . . . yet enjoy *more* efficient heating performance! Doesn't matter what they burn, either. New, improved Walker Fuel Savers assure maximum combustion with *any* type fuel . . . under *all* stack conditions. This means *even* heating, prevents costly "up the chimney" heat loss. There's a quickly installed, easily adjusted Walker Regulator to fit every make heating unit.

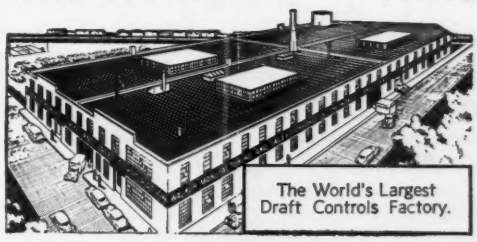
Model BB



Model BB
COMMERCIAL and INDUSTRIAL

(Ball Bearing) Built to meet toughest conditions. Sizes 16-36 inches. Ideal for power plants, schools, garages, industrial plants, laundries . . . thousands in use!

WALKER MFG. & SALES CORP.
1751 PENN ST. ST. JOSEPH, MO.



The World's Largest Draft Controls Factory.

World's largest factory producing Automatic Draft Regulators exclusively . . . not competing either directly or indirectly with producers of any type heating equipment.

has automatic controls to provide individual temperature control in each office and an inner zone, where there is no exposure to windows or sun, is independently controlled.

Prat-Daniel moves to South Norwalk, Conn.

PRAT-DANIEL CORP., formerly of East Port Chester, Conn., has completed an entire removal of the company to a new location in South Norwalk, Conn. The company had been hampered for some time by a total lack of any space bordering the old plant that was either suitable or available for expansion.

The new plant will remove the most undesirable feature of operations in the old one by eliminating several subplants located elsewhere in the city, particularly in the elimination of the transportation costs entailed by these scattered production areas.

The pressure of new business had forced the company to institute two-shift operation and, finally, to lease space for small sub-plants at several other locations in the city. Even this was not sufficient to reduce a large backlog of orders, hence the present move.

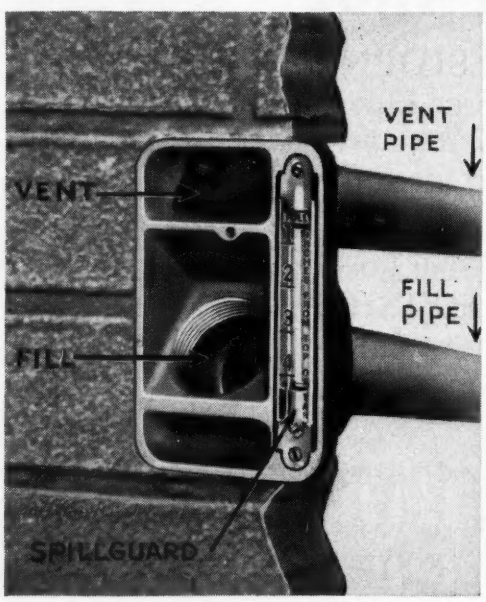
At Last **FILL WITHOUT SPILL—TO LAST GILL**

"PHILLY" FILL-VENT BOX with SPILL GUARD

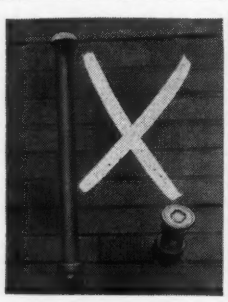
IN ONE COMPACT UNIT

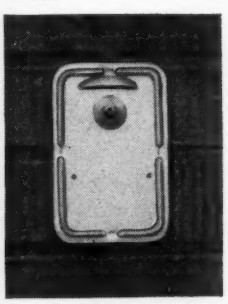
Fill to the *top* without spilling a *drop*, because SPILL GUARD shows the driver the height of oil in tank. It starts to register the exact contents, the instant the oil reaches the last four inches from top of tank. The SPILL GUARD is an unfailing hydrostatic gauge, right in front of his eyes. DELIVERS FROM 15 to 45 MORE GALLONS PER 275 GALLON TANK, PER TRIP. Save one or more trips per customer per season. Accepted by oil burner and oil companies for over 14 years — over 100,000 Fill-Vent Boxes in use.

(Patented and other patents pending)



"Philly" FILL-VENT BOX and SPILL GUARD with cover removed. See lower right photo for unit in closed position.





COSTS LESS

By combining fill cap, vent cap and warning gauge into one unit you SAVE ON MATERIALS AND INSTALLATION TIME. The simplified hydrostatic gauge costs no more than a whistle.

IMPROVE APPEARANCE

SETS FLUSH. COMPACT. RUST PROOF. TAMPER-PROOF, COVER LOCKS TIGHT WITH ALLEN KEY.

OTHER FEATURES

NO NOISE, FILLS FASTER. READ IT IN DARK, ALWAYS ACCURATE, POSITIVE. EASY TO INSTALL. And we repeat—LOW IN COST.

ORDINARY INSTALLATION:
1. FILLCAP
2. 45 DEGREE ELL
3. NIPPLE
4. 90 DEGREE ELL
5. VENT CAP
6. ALARM
7. PAINTING
8. LABOR ON ABOVE

"PHILLY" INSTALLATION:
1. FILL - VENT BOX and SPILL GUARD (Complete Unit)
2. APPROXIMATELY 1/3 OF USUAL LABOR

— and that's all!

PLASTIC APPLIANCE COMPANY
5311 Westminster Avenue
PHILADELPHIA 31, PA.

SOLD THRU SID HARVEY INC. VALLEY STREAM, NEW YORK **ALL BRANCHES**

ATTACH TO LETTERHEAD AND MAIL

PLASTIC APPLIANCE COMPANY:
Send information and prices on the "Philly" FILL-VENT BOX and SPILL GUARD.

Name .....
Position .....
Type Business .....

Webber parts Book is available to Dealers

AVAILABILITY of its new and larger 1951-52 catalog of heating supplies and equipment has been announced by the A. R. Webber Co., New Haven, Conn. The 108 page book is fully illustrated, including hundreds of items and trade prices for each. Copies are distributed without charge to dealers who request them on business letterheads.

The booklet includes a complete line of accessories and parts used in oil-burner installation and maintenance, with alphabetical indexes and grouping of similar parts included for handy reference.

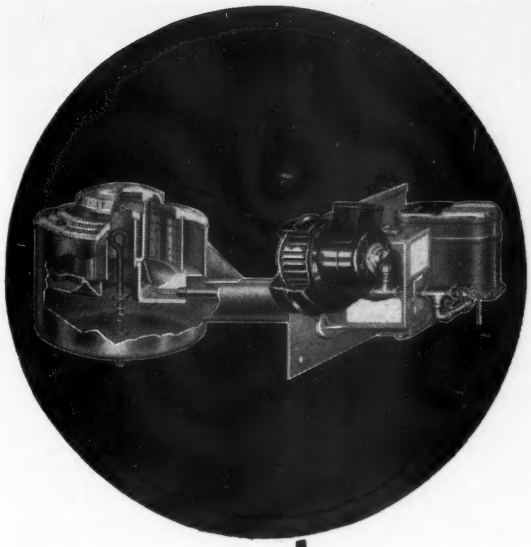
Eight new Appointees named by Detroit Lubricator

DETROIT LUBRICATOR CO., Detroit, Mich., has announced the following eight appointments, effective since July 1, made in the company's Sales Department: K. B. Thorndyke, vice president in charge of the eastern regional office, New York, N. Y.; F. G. Coggin, asst. manager of sales; F. Y. Carter, manager, Refrigeration Controls Div.; W. H. Hohmeyer, manager, sales research and promotion; H. L. Walker, manager, Heating Controls Div.; H. Ledyard, manager, Industrial Prods. Div.; T. C. McKee, Jr., manager, west central regional office, Chicago, Ill.; and F. J. Kriessl, manager, east central regional office, Pittsburgh.

Timken exhibits at Canadian Exposition

TIMKEN SILENT AUTOMATIC dealers in Toronto were in charge of the recent exhibition at the Canadian National Exposition of the automatic heating equipment made by the company's Toronto Division.

The display featured a live demonstration of the Timken wall-flame burner, installed in a warm air furnace that was originally built for coal. Also included was the Twin-Boiler demonstrator, in which two

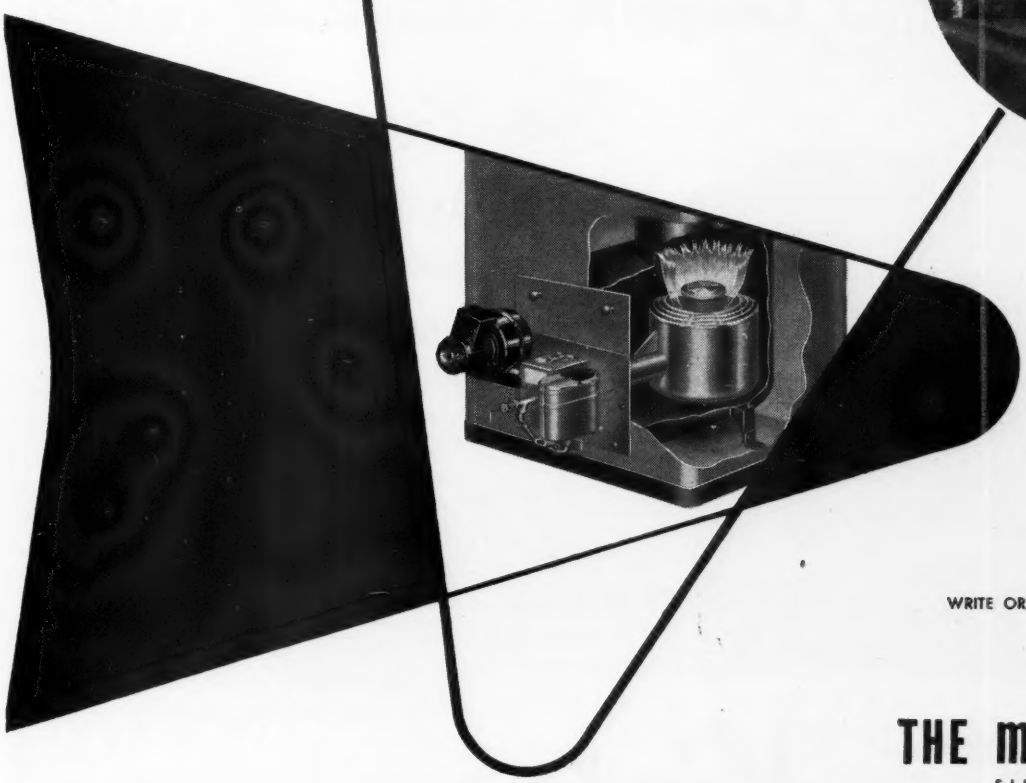


GOOD NEWS FOR FURNACE MANUFACTURERS!

This is not "news" for all, because some manufacturers know about it and are using it to their advantage. It is an oil-burner that fits the picture of competitive small-home-heating sales, designed and produced on a background of 107 years' experience in the building of oil-burning devices.

The Miller Flange-Mounted Vaporizing Oil-Burner with Miller Controls

It is a quality-controlled, precision-built, factory-tested, field-proven burner, designed exclusively for small homes. It has positive means for leveling built in, making leveling easy and independent of furnace setting—a constant-level valve with automatic safety—no manual re-setting—no flooded pots to be drained before lighting—fixed high fire and pilot—fixed air setting—no field adjustments required—a room thermostat that gives accurate close control of room temperature. Operation is quiet. And operating cost is low. Packaged ready for use.



WRITE OR WIRE TODAY FOR FULL DETAILS

THE miller COMPANY

SINCE 1844

HEATING PRODUCTS DIVISION, MERIDEN, CONNECTICUT

ILLUMINATING DIVISION: Fluorescent, Incandescent, Mercury Lighting Equipment
HEATING PRODUCTS DIVISION: Domestic Oil Burners and Liquid Fuel Devices
ROLLING MILL DIVISION: Phosphor Bronze and Brass in Sheets, Strips and Rolls

boilers, one fired by a wall flame burner and one by a pressure type burner, are placed side by side. As the oil burns in each unit, fuel guages demonstrate the lower fuel consumption of the wall flame burner. Two cutaway oil units, a furnace and a boiler, an oil burning water heater and two table top demonstrators were also used in the exhibit, which ran from August 24 to September 8.

M-H describes new sensitive Thermostat

A CONSUMER BOOKLET just published by Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., describes a new electronic thermostat which is 100 times more sensitive than the human body to fluctuations in temperature. The new thermostat is part of an indoor-outdoor electronic control system developed for domestic heating after seven years of research in the company's laboratories.

This system operates the burner in timed cycles which maintain a more even level of warmth than standard control systems are able to accomplish. This is done by a more sensitive response to fluctuations in outdoor temperature, which makes it unnecessary for the burner to run full blast for relatively lengthy periods in compensating for a larger deficiency of heat than the new system allows.

Wayne announces general Reduction in equipment Prices

EFFECTIVE August 15, Wayne Home Equipment Co., Inc., Fort Wayne, Ind., announced a general reduction of prices averaging from 5 to 10%. The reduction affected the entire line of Wayne gas, coal and oilheating equipment, home water systems, water heaters and water softeners.

Improved manufacturing facilities and steadily increasing sales made the reduction possible, even though increases in raw material costs are expected in the foreseeable future, said the company.

❖

CARBOLOY CO., INC., Detroit 32, Mich,, has printed a small folder displaying the unusual feature of Carboloy "Live Spiral" masonry drills. The shaft of the drill is encircled by a heavy metal spiral which removes debris from the hole just as does the bit of a carpenter's drill. Several kits of these drills are shown in the folder, together with list prices of each kit and individual drills.

THE TANKIT CO., Newark 8, N. J., has issued a trade folder desribing its Nuetroda fueloil deodorant for use by servicemen and tank truck drivers to eliminate offensive odors from oil spills. Directions for use of the liquid and list prices of various quantities are included in the folder.

KEWANEE BOILER CORP., Kewanee, Ill., has sent out a folder describing its newest product development, the Kewanee Cottage Boiler, for direct-fired, hot water domestic heating, The folder may be used as a catalog reference bulletin, or as a direct mail piece for customers. Copies of the folder can be had by requesting Form 857 from the nearest branch office or by writing directly to the Advertising Dept., Kewanee, Ill.

VECO TROUBLE FREE Complete Combustion Testing

New-Revolutionary

CO_2 Analyzing Elements

(Sealed in Glass)

SINGLE METER—All readings on one dial Constant accuracy in service use.

3 IN 1 OPERATION

CO_2 INDICATOR
STACK THERMOMETER
DRAFT GAUGE

COMPACT PORTABLE Weighs only 7 pounds

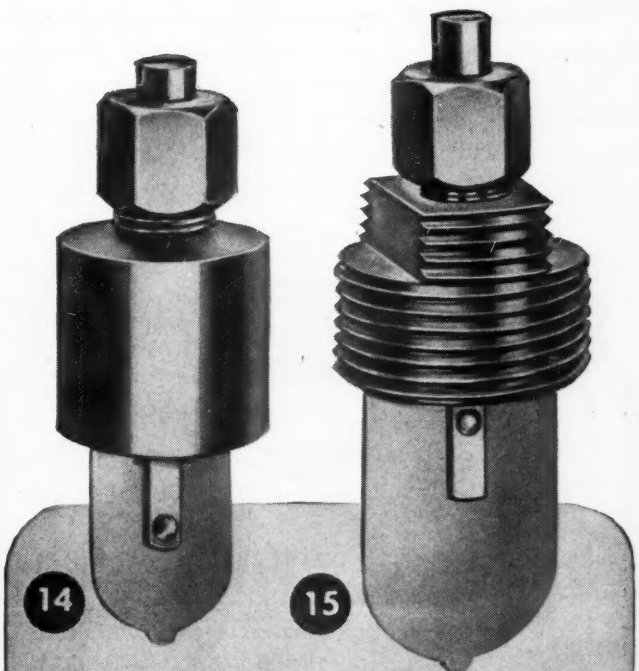
REPRESENTATIVE—VECO has set up factory representation in many cities, but certain excellent areas are still open for qualified persons. Write us for full details.

Victory ENGINEERING CORPORATION
744 Broad Street, Newark, New Jersey
"MANUFACTURERS OF THERMALLY SENSITIVE RESISTORS"

MAID-O'-MIST BALANCING VALVE ADAPTER UNITS

Make Any Copper, Bronze or Cast Iron Tee a Balancing Valve.

Any stock tee, plus the Adapter Unit completes a balancing fitting for hot water heating systems. These new units, quickly soldered or sweat-fitted into copper and bronze tees or threaded into cast iron tees, regulate the flow of hot water through radiators, convectors, baseboard panels, radiant coils, return mains and branches. Precision made of non-ferrous metals.



***The New* MAID-O-MIST BALANCING VALVE Adapter Unit**

NO. 14 BALANCING VALVE ADAPTER UNIT for 3/8", 1/2", 3/4", 1" nominal copper or bronze tees.

NO. 15 BALANCING VALVE ADAPTER UNIT for 1/2", 3/4", 1" and 1 1/4" cast iron tees.

Full free flow through the tee. No restriction except for the balancing required.

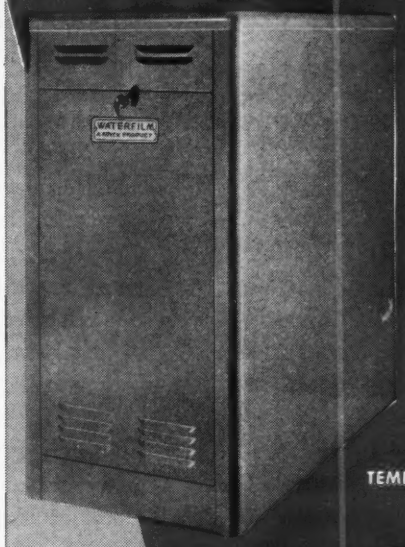
MAID-O'-MIST INC.

AUTOMATIC HUMIDIFIERS FOR ALL TYPES OF HEATING SYSTEMS

3221 N. Pulaski Rd., Chicago 41, Ill.

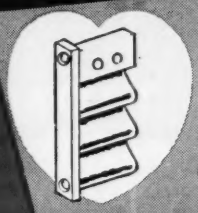
Koven WATERFILM

the FASTEST STEAMING BOILER on the market



EVEN ROOM TEMPERATURE THROUGHOUT THE HOUSE

QUICK HEAT AT LOW COST



THE HEART OF THE WATERFILM BOILER IS THE ZIG-ZAG SHAPED WATER TUBE

- Patented Construction
- Quick-Steaming
- Retards Accumulation of Soot
- Economical
- Rugged Construction
- Easily Replaced

The popularity of the Waterfilm Boiler with architects, builders and consumers lies in the fact that homeowners can see at a glance why it provides quicker, more dependable heat and more plentiful hot water with less fuel consumption. The scientific principle behind the patented zig-zag water tubes is easy to demonstrate and understand. The KOVEN name assures sturdy construction and dependable trouble-free service. Handsomely jacketed, Waterfilm Boilers are available in sizes for small homes, apartment houses and industrial plants. For large installations, we recommend the Sectional Waterfilm—the only boiler that can be taken through a two-foot door, saving expensive alteration and rigging costs. For small homes, install the Venko Packaged Unit.

300-17,850 E. D. R.

NATIONALLY ADVERTISED. Write for free literature and newspaper mats.

WATERFILM BOILERS, Inc.
A Division of L. O. Koven & Bro., Inc.
154 Ogden Ave., Jersey City 7, N. J.
Plants: Jersey City, N. J. Dover, N. J.

FOR AUTOMATIC FIRING WITH OIL, STOKER OR GAS

New Products

Dual-Air vaporizing Burner features unique Design

A COMPLETELY NEW Dual-Air vaporizing oilburner is described as reducing draft requirements as much as 20% on natural draft and up to 67% on forced draft operation, accompanied by fuel savings that often range up to 15% and improved pilot operation. In addition, clean burning and almost complete absence of soot are features.

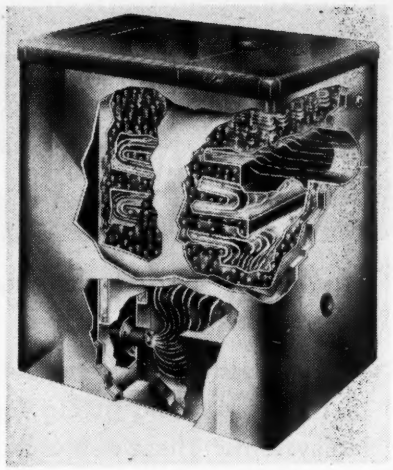
The burner employs an entirely different method of introducing air to the burner that results in clean and efficient burning. Dual-Airs are to be incorporated in all Oran oilfired floor furnaces and central heating systems, as well as in a new oilfired conversion unit that is planned.

Made by: Oran Co., 2222 South 3d St., Columbus 7, Ohio.

Manville improved Boilers offered in eight Sizes

IMPROVED models of Manville tubeless Thermo-Flo boilers are available in 8 sizes, ranging from 320 to 1500 sq. ft. of steam, 510 to 2400 sq. ft. hot water, net standing load radiation. Incorporated in the design are 5 serpentine and baffled flue passages, with 3 water containing baffles in the smallest size, 4 in the next five sizes and 8 in the two larger sizes. Any standard make oilburner can be combined with the unit.

Standard size tankless coils shipped with each boiler start with capacities of 180 gph for the first size and go up to 360 gph for the larger models. Available also are larger coils, a total of 30 different sizes being offered with capacities ranging up to 600 gph. Tank heater coils also can be furnished, a 60

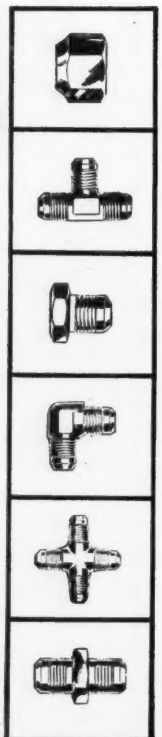


gal. size being standard equipment, with others available as optional equipment up to a 210 gal. size.

The boilers are produced in a modern plant in Hackettstown, N. J. that has been in production for the past two years and which is equipped with specially-designed production machinery. Design of these steel boilers has enabled the manufacturer to guarantee pulsation-free performance.

Made by: Manville Boiler Co., Inc., 415 Lexington Ave., New York 17, N. Y.

For a FITTING CONNECTION of long standing select MADDEN BRASS



For trouble-free service and ease of installation install Madden commercial and industrial fittings and flare nuts. They are precision machined of forged brass and extruded rods.

Write for free catalog of the complete Madden fitting and accessory line.

MADDEN BRASS PRODUCTS CO.

1111 North Franklin Street, Dept. B-10 Chicago 10, Illinois

SKINNER V2-type VALVE

★ relief
★ shut-off
★ drip-eliminator

OUTSTANDING PERFORMANCE & ECONOMY

On original oil burner equipment or for service replacement, new standards of performance are yours with the low-cost Skinner V2 Solenoid Valve! Sturdy steel parts are plated to resist corrosion — compact — weighs only 9 oz. — usable in any position! Soft synthetic seat and seals prevent leakage, and spring loading assures positive operation. There are no brazed, welded, soldered pressure joints, or threaded parts to loosen under vibration. Maximum pressure is 125 P.S.I. — rated at 10 watts max. — Underwriters' approved. Relief model is 2 way, normally open. Drip-eliminator or shut-off is 2 way, normally closed.

Write for details and low prices!

Skinner ELECTRIC VALVE DIV.

THE SKINNER CHUCK COMPANY
141 Belden Ave., Norwalk, Conn.

QUIET AUTOMATIC *flanged burners to fit all oil furnaces*

You SAVE All Ways
when you buy
FLANGED
QUIET AUTOMATIC
OIL BURNER
For Your Oil Burning Boilers or
Winter Air Conditioning Furnaces
We make over fifty different types of flanged Oil Burners to fit American Radiator, U. S. Radiator, Thatcher, Ko-Z-Aire, Norse, National, Kewanee, etc., and any other make of oil boiler or oil-fired air conditioning furnace. Buy direct from the original manufacturer and SAVE the difference.
Compare the PRICE—
Saves up to 1/3 on your burner
Compare the QUALITY—
One-piece machined casting
Compare the EFFICIENCY—
Hi-combustion and a cleaner, quieter flame

FACTORY AND WAREHOUSES: 17-19 GROVE ST. MONTCLAIR (Newark Suburb) NEW JERSEY

QUIET AUTOMATIC BURNER CORP.

ESTABLISHED 1923 • J. GORDON KAVENY, PRES.

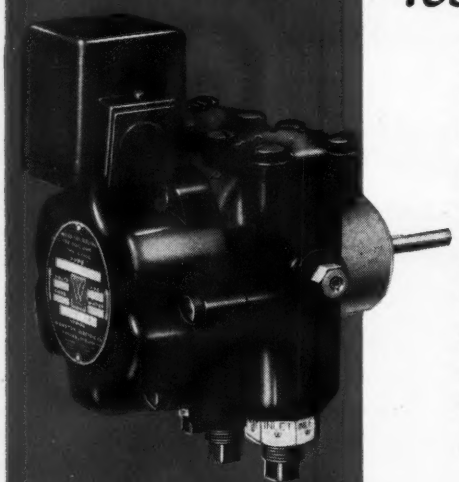
33-35 BLOOMFIELD AVE., near Broadway

NEWARK 4, NEW JERSEY

BRANCHES OR DISTRIBUTORS FROM MAINE TO FLORIDA, CHICAGO ST. LOUIS AND ALL IMPORTANT CITIES

OT*
SERVICEMAN SAYS —

"If you want
the latest in a perfect start...
it's 'DELAYTROL'"



"Years ago, Webster Electric introduced 'Delaytrol.' Since then, it has been improved until today this outstanding fuel pump is the last word in perfect starting. It delays the delivery of oil to the nozzle 4 to 7 seconds, giving a perfect, clean start . . . as well as a perfect stop by instantaneous cut-off.

"The units, I understand, are known as the '5Q' single stage, '5T' two-stage, and '10T' high capacity two-stage fuel units. The units are interchangeable to simplify service in the field and permit modernization of equipment up to twelve years old.

"From my experience I'd say it's a good idea to get acquainted with 'Delaytrol.' You know you can depend upon it because it's a Webster Electric unit."

*Old Timer

Standard fuel units are made for sale in Canada by Canadian Acme Screw & Gear, Ltd. of Toronto, under license by Webster Electric Company, Racine, Wis. Established 1909.

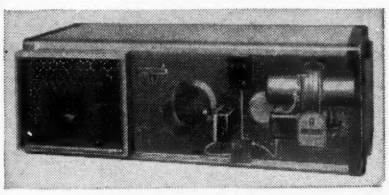
WEBSTER ELECTRIC
RACINE • WISCONSIN

"Where Quality is a Responsibility and Fair Dealing an Obligation"

. . . . New Products

Armstrong introduces horizontal oil Furnace

AN OILFIRED horizontal winter air conditioning unit, with 80,000 Btu output, has been designated model 8801 L8-80 by Armstrong Furnace. It is fired with a D4 burner, especially designed for low-gallonage efficiency, equipped with a Turbo-Regulator, combining air control and turbulation. The unit's heating element is of welded steel, incorporating a wrap-around radiator, with steel fins welded to the top of the furnace body to gain additional heat transfer in the horizontal position.



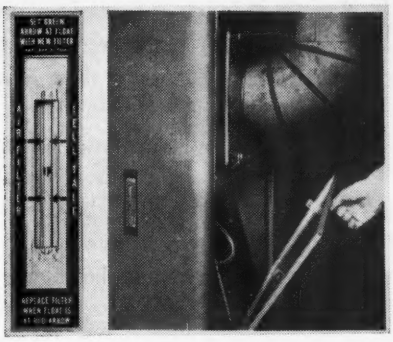
Return air may be brought into the front, rear or end of the blower compartment, and the unit is equipped with interchangeable panels for any position. The filter frame is placed in one opening, blower compartment access door in another and an enamelled steel panel in the third. Measuring 24" x 24" x 72½", the cabinet is finished in standard Armstrong two-tone blue enamel. Four eye-bolts are provided for suspended installation; levelling screws are located in the bottom of the cabinet for use in non-suspended applications. The furnace is shipped in a crate that will pass through standard doors and only the burner and combustion chamber has to be installed by the dealer.

Made by: Armstrong Furnace Co., 851 West 3d Ave., Columbus, Ohio.

Visible air filter Gauge for Heil forced air Furnaces

A VISIBLE air filter gauge, indicating the condition of the filters, is being shipped with Heil automatic forced air heating units. The "Tell Tale" gauge is mounted on a side panel of the furnace, with a flexible plastic tube leading through the filter and into the blower compartment.

When a new air filter is installed a green arrow is set at the position of the float in the tube. As the filters become



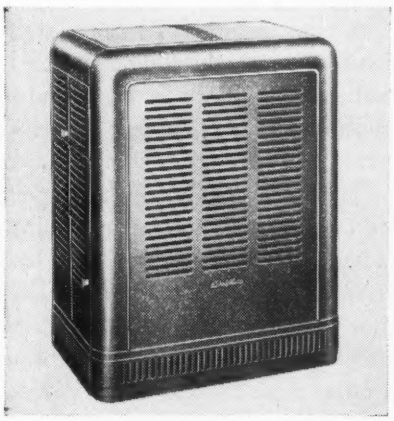
clogged the float rises in the tube, actuated by the difference in air pressures above and below the filters. The float reaches a red arrow when it is time to change filters.

Made by: The Heil Co., Milwaukee 1, Wis.

Perfection model 3159 includes Floor-Flo Blower

MODEL 3159 oilburning space heater, added to the Perfection line, delivers 62,000 Btu/hr. and is fired with the Multi-Heat burner, featuring the fuel-saving Midget pilot. Standard equipment on the model 3159 includes a Floor-Flo blower to circulate heat, aided by heat-directing shutters on the sides and a large louver area.

It also is equipped with a 1 gal. humidifier, removable top grille, combination oil control and constant level valve, lighting tube, fuel cleanout plunger and automatic draft regulator.



Made by: Perfection Stove Co., 7609 Platt Ave., Cleveland 4, Chio.

Alstrom oil Preheater is non-contaminating Type

SAFE GUARD oil preheaters protect against contaminating of boilers and heating systems and are equipped with

OT* SERVICEMAN SAYS —

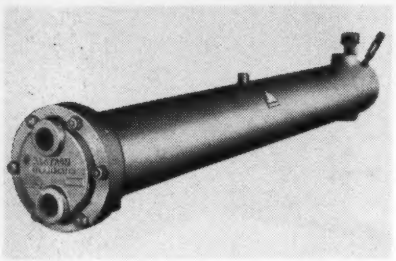
"Here's the best plan to come down the pike in years!"

"Here's some real help that you and I can cash in on—the new Service Saver Plan produced by Webster Electric. Those fellows were smart enough to foresee the trouble we would have in training new service men to replace those taken by the armed services. Because they are genuinely interested in making our job easier, they worked out this Service Saver Plan as a quick training course on oil burner servicing—not just for the new men in the field but for old dyed-in-the-wool service men like us as well. It's full of time-saving shortcuts and service tips, so don't miss it. Keep in touch with your Webster Electric Service Station for the date when this plan will be presented in your territory."

*Old Timer

WEBSTER ELECTRIC
RACINE • WISCONSIN

"Where Quality is a Responsibility and Fair Dealing an Obligation"



visual indicators on all models to warn of oil leaks. The heater is a double transfer unit, triple-tested to guard against leaking oil tubes.

Tests have been conducted to prove the compact and ruggedly constructed Safe Guard will deliver oil heated to uniform temperatures in models available for both below-water-line and Vacuumatic installations. A complete range of sizes is offered.

Made by: Alstrom Corp., 790 East 176th St., Bronx 60, N. Y.

Acme obtains Patent for new boiler tube Baffle

A NEW BOILER TUBE BAFFLE, installed exclusively on Acme "Dual 8" and "Dual 6" boiler-burner units, has been awarded a patent. It consists of an intensifier tube, designed for boilers with several fire tubes extending through a water chamber, and is of stainless steel with an outside diameter slightly less than the inside diameter of the fire tube. On top of the tube is a stainless steel disc, fastened to the tube by tabs extending downward, allowing a space between the top of the tube and the disc. The disc is convex, with the intensifier tube suspended in the fire tube by means of a connecting rod bent at right angles to hook over its edge.

The disc impedes the flow of escaping heat, directing it to the walls of the fire tube. The intensifier tube induces some heat to pass up the narrow space between it and the fire tube and with the larger part of escaping heat trapped in the intensifier tube, it becomes superheated and increases heat transfer through the fire tube walls.

Made by: Acme Tank & Welding, division of United Tool & Die Co., Inc., West Hartford, Conn.

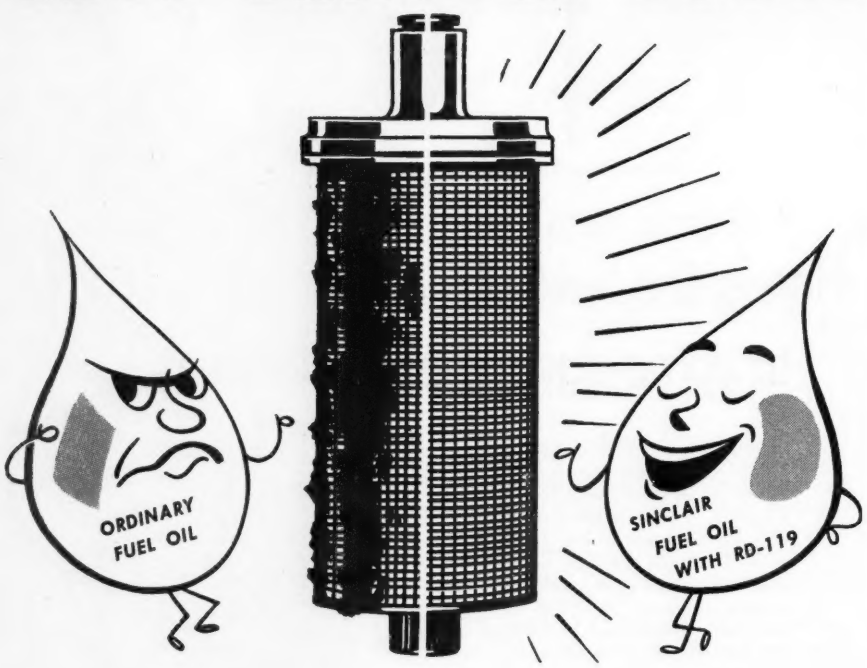
Brown Instruments announces series of pyrometer Supplies

A SERIES of new pyrometer supplies have been announced by Brown Instruments, including a cast-iron, closed-end protecting tube for molten aluminum applicaitons, available in lengths of 12, 18, 23, 30 and 36", 1 15/16" O.D. by 13/16" I.D.

A two-conductor, 24-gauge copper constantan thermocouple wire has been developed for refrigeration applications and a portable immersion, removable-tip thermocouple is offered for measuring temperatures of molten steel in foundry holding and transfer ladles. The refrigeration unit has a temperature range from minus 20 to plus 225 degrees F.; the other thermocouple provides quick readings through a range from 2400 to 2900 degrees F.

Another development is a 20-gauge JX and KX two-conductor insulated extension wire, with standard I.S.A. wire color coding in iron-constantan and Chromel-Alumel components and the last is a 1", I.P.S. resisteat protecting tube, which has been tested satisfactorily for thermocouple protection in heat treating furnaces, salt and lead hardening baths and gas burners. This

How Sinclair RD-119 CUTS SERVICE COSTS



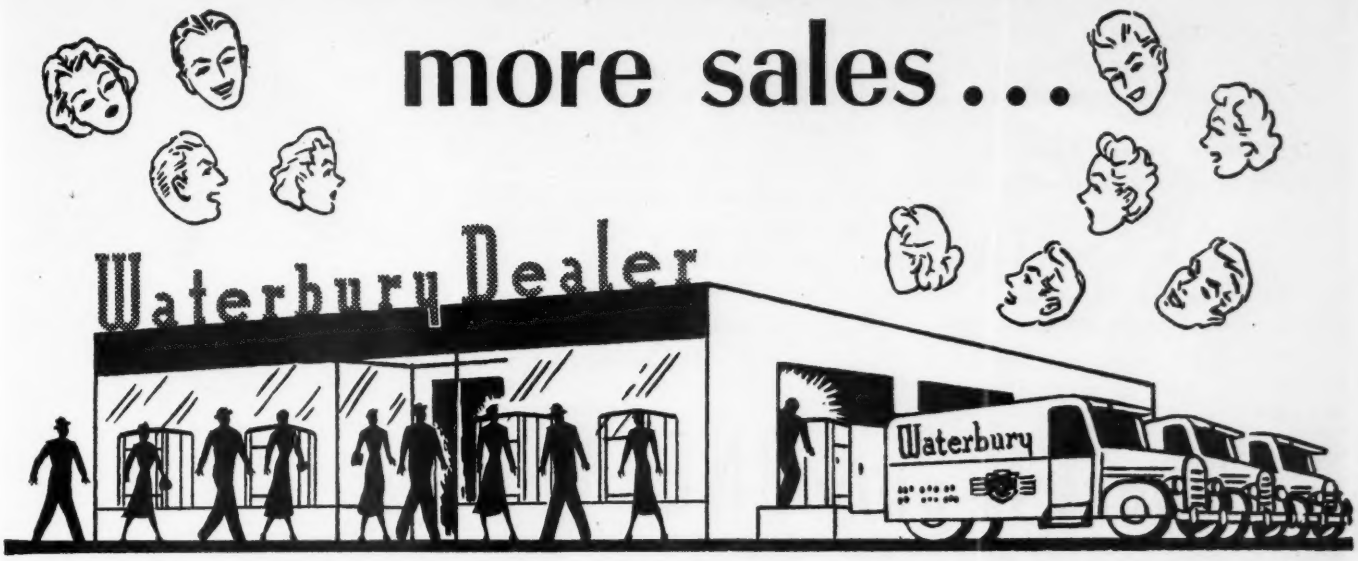
RD-119 Stops Rust—Keeps Customers Happy

With ordinary fuel oil, RUST, caused by moisture condensation, clogs filter screens and burner nozzles. This results in customer complaints, increased servicing costs. But Sinclair Fuel Oil contains RD-119®, Sinclair's miracle rust inhibitor. Used regularly, RD-119 stops rust—cuts service-call expense, helps keep your customers happy. Save money, save trouble with . . .

SINCLAIR
FUEL OIL WITH RD-119®

ANTI-RUST Super Flame ®

more prospects...
more sales...

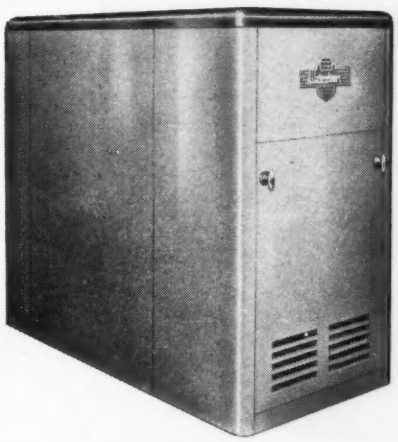


WITH Waterbury THE COMPLETE WARM AIR LINE

When you carry the Waterbury line of furnaces and winter air conditioners, you know you have a unit for every job. Every installation, whether it be in a small home, a large home, a church, the corner store or the local garage, is, therefore, a good prospect for you.

To help turn these many prospects into satisfied customers, Waterbury Dealers are aided by a Quality Product . . . a National Advertising Program . . . and Sound Merchandising. No wonder, then, that Dealers find that association with Waterbury is good business.

FOR EVERY SIZE HOME



FOR EVERY TYPE FUEL

"It's what's under the casing that counts!"

The Waterman-Waterbury Co.

OVER 44 YEARS OF WARM AIR HEATING

1171 JACKSON STREET N.E. • MINNEAPOLIS 13, MINNESOTA

Fueloil & oilheat

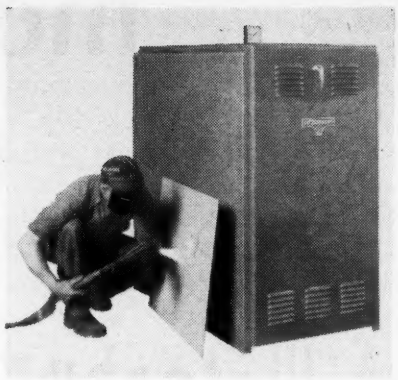
tube has a recommended high measuring temperature of 1800 degrees F.

Made by: Brown Instruments Div., Minneapolis-Honeywell Regulator Co., Wayne and Windrim Aves., Philadelphia 44, Pa.

Fitzgibbons using "Hernite" Jackets on residential Boilers

ALL SIZES of Fitzgibbons "200" and "400" series residential boilers are being shipped with jackets of the enclosing type, composed largely of "Hernite," a development of Sweden's wood products industry. The side and rear panels of the jacket are "Hernite," the front and top panels and supporting frame are heavy-gauge steel. The new material is more than 3 times as thick as the steel it replaces, yet it does not increase the total weight of the jacket and is described as more effective in deadening burner and combustion noises, while adding to the insulating qualities and rigidity of the jacket.

Before adopting it, the material was tested by applying an acetylene torch to the inside of a finished piece of

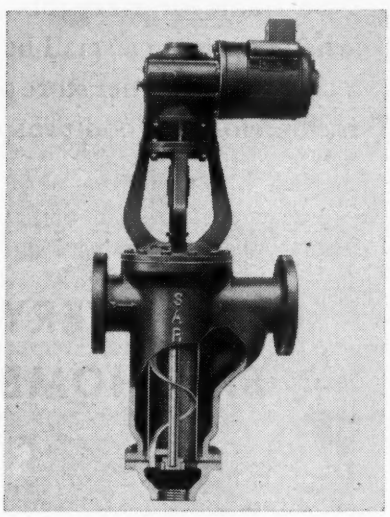


paneling. The panel would not burn nor show any change and even the glossy Fitzgibbons' finish on the outside gave no indication of the intense heat.

Made by: Fitzgibbons Boiler Co., Inc., 101 Park Ave., New York 17, N. Y.

Sarco line Strainer has built-in Scraper

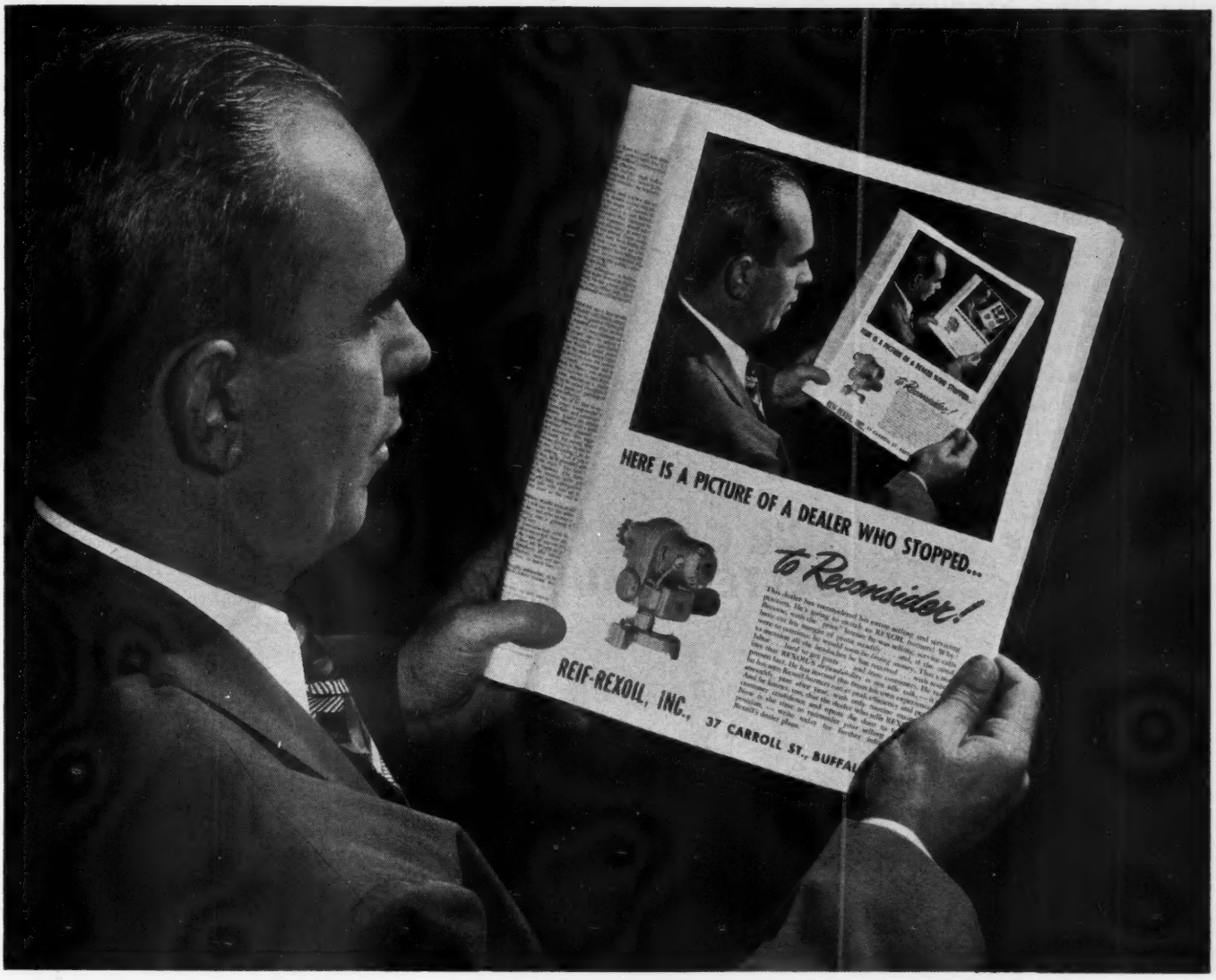
SARCO SCRAPER STRAINERS are available in a range of sizes from ¾" to 8" and incorporate a helical scraper blade located inside the cylindrical screen. The blade rotates and continuously cleans the pipe line strainer screen and removes solids or scum without interruption of flow. It is used with any fluid, including Bunker C fueloil.



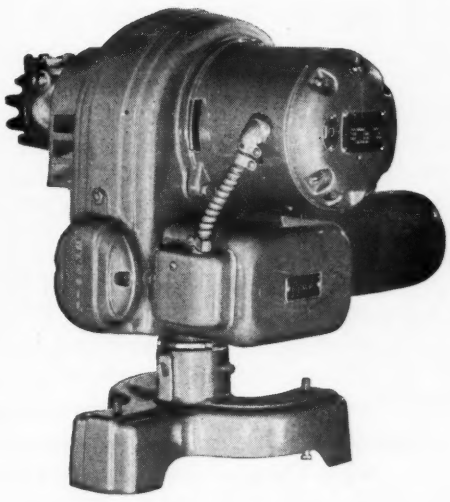
The model illustrated is motor-driven and has the screen positioned at right angles to the flow. Hand-operated models also can be furnished and another type has the screen at a 30° to 60° angle from horizontal for minimum pressure drop. Since the scraper blade keeps the screen clean of dirt as quickly as it is trapped, it is possible to use closer-mesh screens and the strainers can be adjusted to break-up and homogenize small masses of

There is only ONE
TRADE MARK REGISTERED
Draft-O-Stat
BAROMETRIC DRAFT CONTROL
AND HOTSTREAM MAKES IT!

OVER ONE MILLION
SUCCESSFUL INSTALLATIONS
New Model "B" (illustrated) now available in 6, 7, 8, 9, 10 and 12 inch sizes. Write for Bulletin.
THE HOTSTREAM HEATER CO.
6925 QUINCY AVENUE • CLEVELAND 4, OHIO



HERE IS A PICTURE OF A DEALER WHO STOPPED...



to Reconsider!

Yes, stopped . . . to reconsider his PROFITS! Frequent expensive service calls on his "price" line of oil burners has consistently cut profits per sale. So, now he's considering a change to REXOIL. Experience has shown that precision built REXOIL burners practically eliminate service calls . . . and *keep profits constant.* And, too, REXOIL burners will come to him fully assembled and factory tested . . . for *cheaper, quicker installations.* Investigate REXOIL dealer plans, yourself . . . Write today.

REIF-REXOIL, INC., 37 CARROLL ST., BUFFALO 3, N. Y.

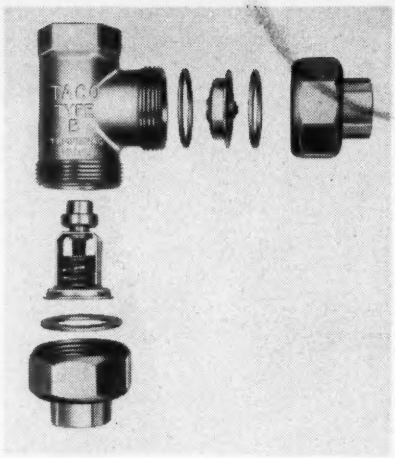
fueloil & oilheat

material. The body, scraper and screen can be ordered of any suitable metal.

Made by: Sarco Co., Inc., Empire State Bldg., New York 1, N. Y.

Type B tempering Valve is improved Taco Model

TYPE B Taco tempering valve is an improved version of the Type S valve, introduced 12 years ago. The new model has a fixed setting that delivers water to faucets or fixtures at a temperature of approximately 140° F. and features a patented power element that



uses no bi-metal, liquids or bellows. The element is constructed of phosphor and commercial bronze, as well as stainless steel.

Type B is supplied in ½" and ¾" sizes, suitable for residential and small commercial applications. The sealed thermostatic element, features one piece construction that can be replaced in minutes. A Biltin check valve equalizes pressures and each model is shipped with two unions for easy installation.

Made by: Taco Heaters, Inc., 137 South St., Providence 3, R. I.

"Rochester" OUR GUIDE TO A BETTER GAUGE"

J.E.Kunkel
FUEL OIL AND COAL SINCE 1907
May 11, 1951
Rochester Manufacturing Co
19 Rockwood Street
Rochester 10, N.Y.
Gentlemen:
The name "ROCHESTER" has been our guide to a better gauge since we have been in the oil burner business
The ROCHESTER "DUAL-DIAL" OIL TANK GAUGE has proven to be the most dependable, leak-proof, trouble-free gauge we could find.
F. M. BEAMER, MANAGER
AUTOMATIC HEATING DIVISION
J E KUNKEL
Philadelphia, Pa.

Throughout the country, Rochester "Dual-Dial" gauges have become the standby of hundreds of dealers like Mr. Beamer. They've found from experience that these rugged gauges mean more satisfied customers and extra profits by eliminating needless service calls. You, too, can profit by these outstanding "Dual-Dial" features . . .

- LEAK PROOF
- PRESSURE TIGHT
- EASY TO READ
- EASY TO INSTALL
- UNDERWRITERS' LISTED

Stocked by leading wholesalers for all standard basement oil burner storage tanks with 1½" and 2" flanges. ORDER TODAY! Rochester Manufacturing Co., Inc., 8 Rockwood St., Rochester 10, New York.

ROCHESTER MANUFACTURING COMPANY, INC.
DIAL THERMOMETERS GAUGES AMMETERS
ROCHESTER DEPENDABLE ACCURACY GAUGES

Wa-Tu-Bo Safety Oil Heaters protect against tube Failure

WA-TU-BO Safety Oil Heaters are designed to prevent the oil from entering boiler water in the event of tube failure. Boiler water circulates through a copper tube element placed inside of a shell filled with water. The copper tubes heat the water in the shell, which, in turn, heats tubes through which oil is pumped to the burners. Heating medium used may be water or steam.

Wa-Tu-Bo Safety Oil Heater

Oil heating tubes are arranged so that oil circulates back and forth through many passes, with oil connections made so that the heads of the heaters may be removed for cleaning without dismantling oil piping. The water heating copper tube element is a removable U-bend unit, bolted to the rear tube sheet of the heater.

Twenty-six models can be supplied, with capacities from 57 to 678 gph when using 212° water as a heating element, up to 729 gph when 225° water is employed. Maximum capacities available using 2 lb. steam for heating is 678 gph, which increases to 799 gph with 5 lb. steam, 1027 gph with 10 lb. steam and 1165 gph with 15 lb. steam heating from 90° to 160°.

Made by: Water Tube Boiler & Tank Co., 140 West Root St., Chicago 9, Ill.

1—A NAME THAT'S KNOWN AND RESPECTED ALL OVER THE WORLD. 2—PRODUCTS THAT LEAD THE FIELD IN DESIGN AND PERFORMANCE. 3—NATIONAL ADVERTISING AND SALES PROMOTION PROGRAM. 4—A COMPLETE LINE OF HEATING AND COOLING UNITS FOR EVERY SEASON. 5—FACTORY-SUPERVISED TRAINING PROGRAM FOR SALES AND SERVICE PERSONNEL. 6—BIG-VOLUME, MASS-PRODUCTION FACILITIES AND TECHNIQUES.

These are the reasons why wise dealers are signing up for Chrysler Airtemp franchises. They know that Chrysler Airtemp is *the line* for bigger volume and year-'round profit. Chrysler Airtemp products are easy to sell for every householder and businessman is aware of the sterling reputation of Chrysler Corporation. And Chrysler Airtemp salesmen are backed up by an intensive, hard-hitting advertising campaign in national magazines and newspapers. Then again, Chrysler Airtemp's line of products for heating, cooling and refrigeration means year-'round sales—no matter what season.

And Chrysler Airtemp offers experienced help in training dealers' sales and service teams. Add up these factors plus Chrysler Airtemp's big-volume production, which means prompt delivery on any item, and you see why more and more dealers are joining the Chrysler Airtemp team. There may be a franchise open in your neighborhood. Why not mail the coupon today for full details.

FO&OH-9-51

Airtemp Division of Chrysler Corporation
Dayton 1, Ohio

Please rush me complete information on the profitable Chrysler Airtemp dealer franchise.

Name_____

Address_____

City_____ Zone____ State_____

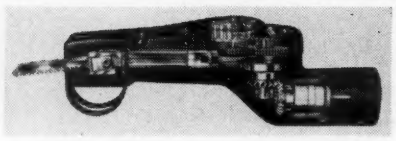
CHRYSLER AIRTEMP
DIVISION OF CHRYSLER CORPORATION

Chrysler Airtemp

AIR CONDITIONING • HEATING • COMMERCIAL REFRIGERATION

Airtemp Division of Chrysler Corporation, Dayton 1, Ohio

R.C.S. Super-Saw features new alloy steel Piston



A ONE-PIECE, heat-treated alloy steel piston with separate clamping jaw features the new R.C.S. Super-Saw model, along with hardened "Gleason Cut drive gears, insert type piston bearings and a one-piece connecting rod. The entire unit now is sealed against grease leakage, with a new grip and re-designed shank of the Vise-Lok blades to prevent slippage or chatter. The new model has the same built-in blower to cool the mechanism and blow chips or sawdust away from the cutting line that characterized earlier models.

Power for the saw, which needs no starting hole, is provided by any heavy-duty ¼" or 5/16" electric drill, by air drill or standard flexible shaft equipment. Super-Saw measures 10¾" overall, but it has been designed as a heavy or constant duty power tool, intended for field and shop use. Complete details are contained in bulletin #P7.

Made by: R.C.S. Tool Sales Corp., Joliet, Ill.

Air-Jet aluminum Chimney features air cooled Design

AIR-JET chimneys of aluminum construction, with stainless steel or acid resisting porcelained steel smoke pipe, feature an air-cooled design, whereby outside air is drawn in through louvres in the top housing of the chimney, circulated down an outer jacket, reversed and discharged adjacent to the smoke pipe opening. The flow of cooling air is assisted by jet action of the smoke issuing from the upper end of the smoke pipe.

Air-Jets incorporate an anti-down draft top and "Raingroove" flashing, are of lightweight construction, with the complete chimney weighing less than 100 lbs. They have been wind-load tested for winds equivalent to hurricane force and are furnished factory painted in attractive gray enamel. No cement or special tools are needed to install the chimneys, nor is dismantling on the job required, since the top is furnished complete. They have been approved for zero clearance from wood on one and two-story buildings and can be used with all fuels.

Made by: General Products Co., Fredericksburg, Va.

Stahl Body for service Trucks can have emergency fueloil Tan

FUELOIL service truck bodies, offered by Stahl Metal Products, are designed for installation on ½, ¾ and 1 ton truck chassis. The body of all steel and electrically welded construction, can be equipped with a 100 gal. fueloil tank as an optional extra, installed in the forward compartment, for emergency use when the serviceman discovers a customer's oil supply has been exhausted.

Side compartments on both sides of the body are equipped with material trays and shelves for safe, dry storage of tools and parts. Large loading space

For GASOLINE and OIL TRANSPORT SERVICE

MODEL GL-02
Gear Drive (as shown)
Also for Engine Drive
Motor or Belt Drive.

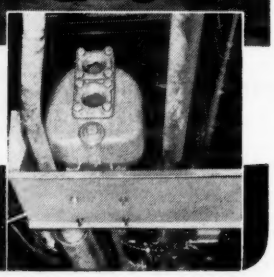
AND HERE IS Why!

This Pump Has: Straight-in-line Suction and Discharge, eliminates friction loss . . . **No Check Valve,** reduces maintenance cost . . . **Positive Self-Priming,** Gorman-Rupp design . . . **Sturdy Helical Cut Gears,** designed to take fifteen H.P. continuously and operates thrust free . . . **Self-lubricating Seal,** dependable and trouble-free . . . **Compact,** requires the minimum of installation space . . . **Most Efficient pump of its kind** . . . Compare these points with any other pump on the market. . **There's No Pump Like It.**

Easy mounting on trucks. Unit dimensions most suitable for installations between truck frame and members.

Photo at right—GL-02½ pump mounted on a canopy body truck. Used for aircraft refueling in connection with a hydrant system.

Lower photo—close up view of same installation showing pump attached to truck frame. Note excellent ground clearance.



Ask for Bulletin O-PP-11 and Performance Curves.

Eastern Petroleum Representative:
CHAS. W. M. COOTE CO., INC.
336 Gregory Ave., West Orange, N. J.

THE GORMAN-RUPP COMPANY
MANSFIELD, OHIO

CENTURY

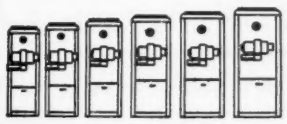
Automatic Heating Equipment can make money for you *every day!*

44 CENTURY Units help you close more sales!

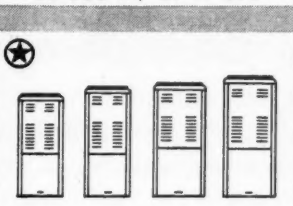
It has been pretty well established that a heating dealer who sells from a **complete line,** closes more sales and shows a larger net profit at the end of the year. Century specializes in fully automatic heating equipment and offers 44 units that will enable an alert heating dealer to bid on the profitable automatic heating installations in the residential and commercial field.

Century Automatic Heating Equipment has a reputation for greater efficiency, dependability and lowered fuel costs that is of deep interest to every prospective purchaser. Century's reputation is the outgrowth of 26 years of service in automatic heating.

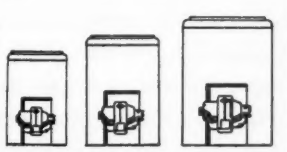
Century Engineering Corporation, Cedar Rapids, Iowa



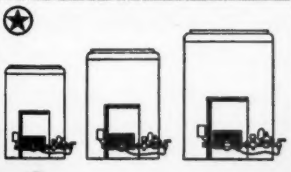
6 Sizes Oil HIBOYS
85-380 M/ B. T. U.'s



4 Sizes Gas HIBOYS
85-150 M/ B. T. U.'s

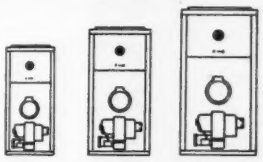


3 Sizes Oil Gravity
70-140 M/ B. T. U.'s

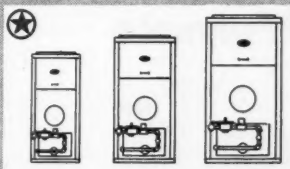


3 Sizes Gas Gravity
70-140 M/ B. T. U.'s

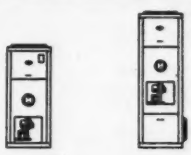
6 Sizes Oil (Basement)
105-380 M/ B.T.U.'s



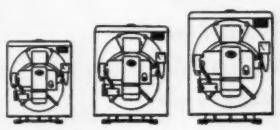
3 Sizes Oil (Basement)
100-170 M/ B.T.U.'s



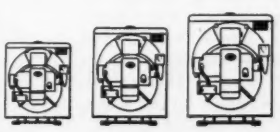
3 Sizes Gas (Basement)
100-170 M/ B.T.U.'s



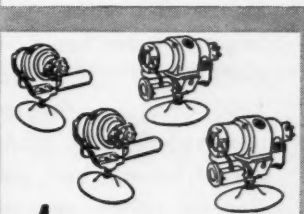
2 Sizes Oil Vaporizing
60-80 M/ B. T. U.'s



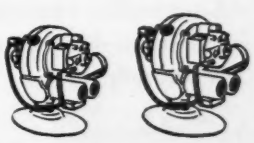
3 Sizes Oil Boilers 380-740
Sq. Ft. Radiation



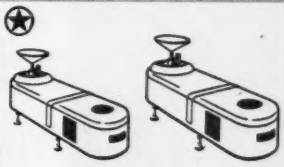
3 Sizes Oil Water Heaters
125-250 G. P. H.



4 Sizes: 3/4-5 G.P.H.
Conversion Oil Burners



2 Sizes: 5-20 G.P.H.
Conversion Oil Burners



2 Sizes: 87-250 M/ B.T.U's
Conversion Gas Burners

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The Finest in Automatic Heating Equipment.

between side compartments provides ample space for carrying conversion burners, furnaces, boilers, tanks and similar equipment.

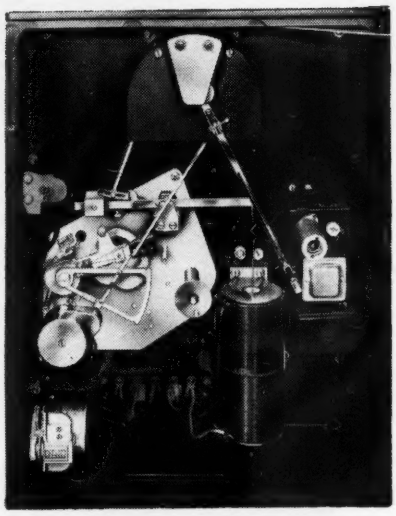
Made by: Stahl Metal Products, Inc., 3490 West 140 St., Cleveland 11, Ohio.

Brown flow Meter is supplied in three Ranges

A NEW TYPE of Brown flow meter combines functional design with fast and accurate response over an entire range. It incorporates such features as an evenly graduated meter scale and electronic integration and can be furnished as a mechanical flow meter with integral recorder or as an electrical transmitter to be used with a Brown inductance bridge receiver.

The new meter is of the differential

. . . New Products



type, readily installed on a flow line, with its meter body mounted in a convenient location near the line. Differential pressure lines from the orifice are piped into ½" S.P.T. connections provided on the meter. Models are supplied in three ranges: 53, 119.25 and 212 ins. of water, 750 and 1,500 psi static pressure; for dry calibration the ranges are slightly greater.

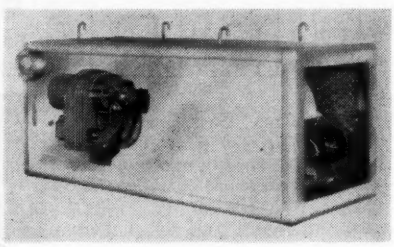
Made by: Brown Instruments Div., Wayne & Windrim Ave., Philadelphia 44, Pa.

York suspended furnace Unit develops Capacity of 90,000 Btu

A SMALL SIZE suspended-type oilfired winter air conditioner has been added to the York line in answer to an increasing demand for such a unit that can be installed in crawl space, attics or closets of small homes. The completely packaged unit has a capacity of 90,000 Btu at the bonnet and is enclosed in a white casing, like other models in the Great White Line.

The suspended furnace unit measures 23" square, 59" long and weighs 482 lbs. and is fired with an Iris Shutter burner, equipped with an 0.87 gph nozzle. It carries a full guarantee and the Good Housekeeping seal.

Made by: York-Shipley, Inc., York, Pa.

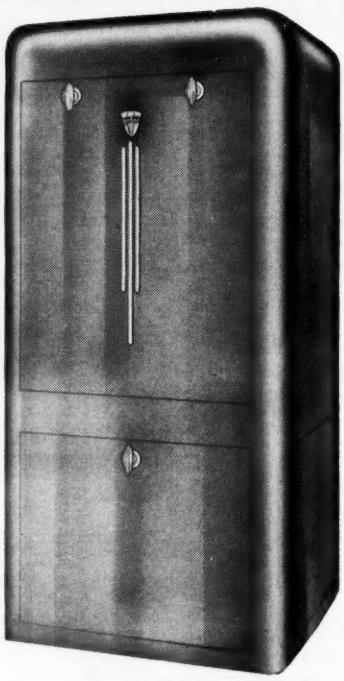


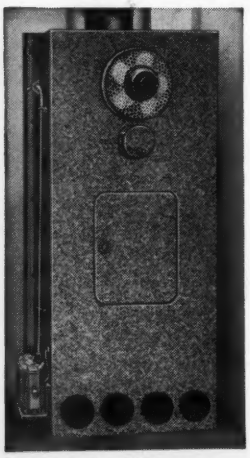
SILENT SIOUX

Silent Sioux beats your competition

Winter Air Conditioner

Year after year Silent Sioux beats your competition on PRICE, QUALITY, PERFORMANCE, FEATURES and STYLING. The Silent Sioux "Complete Package" Winter Air Conditioner has 85,000 BTU output . . . will heat the larger 7 room home . . . has forced draft burner . . . forced circulation at 1200 CFM . . . finished in attractive gray hammertone. Comes complete—burner, blower, belt, pulleys, limit control, fan switch, oil control, fused entrance switch, wall thermostat and draft regulator—one "Complete Package" reduces inventory, simplifies installation. All-automatic operation delivers air-conditioned heat at a constant, even temperature.

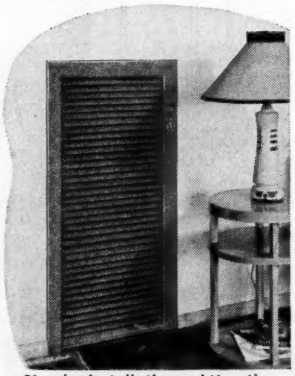




Heater is in utility room or alcove with all controls and access doors readily accessible for cleaning and servicing.

NEW...in the wall Oil Furnace

An ideal heating system for small and medium sized basementless homes. Equipped with the famous Silent Sioux "Triplex" burner. Thermostatically controlled forced circulation . . . 44,600 BTU/hr. . . . 7" general purpose fan . . . finished in smooth brown hammertone. Dangerous temperatures prevented by extra limit switch feature. Easier to install and service than a floor furnace.



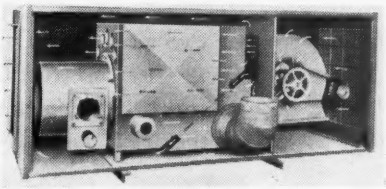
Simple installation. Attractive louvered wall plate and oil control knob is all that shows in living area.

For greater sales and beat your competition too, stock up with Silent Sioux, write:

Silent Sioux Oil Burner Corp., Orange City, Iowa

Auburn furnace Units incorporate air tube Design

AUBURN suspended type furnace-burner units may be furnished for gas or oilfiring and incorporate air tube design. Models include sizes for Btu



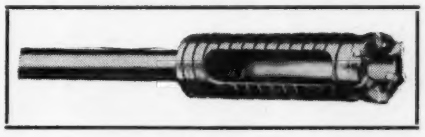
outputs from 80,000 to 400,000, the smallest of which is not tubular construction, with firing rates ranging from .75 to 3.5, all using a flange-mounted gun burner. One or two standard air filters may be included, depending upon the size of the units, which feature accessibility of all parts.

Boiler tubes and a baffled radiator provide long flue travel, with a blower forcing air directly over all hot surfaces and diverting a large portion of air through the specially constructed boiler flues, around the heat exchanger, combustion chamber and over the angle-baffled radiator. A factory-designed and installed refractory combustion chamber is standard equipment.

Made by: Auburn Burner Co., Auburn, Ind.

Tilden Konkrete Kore Drills with tungsten carbide Cutters

TILDEN ROTARY Konkrete Kore drills are equipped with sintered tungsten carbide cutters and cut only a ring out of the material being drilled. All drills, which are carried in stock and in sizes from 3/6" to 4" diameters, have from



2 to 24 cutters and feature a full-length coreslot and spiral fluting to clear the hole. Drills in sizes 5/8" and over have interchangeable shanks for drilling any depth hole. Special drills in sizes up to 8" diameter, lengths up to 40" can be furnished on special order.

Resharpening of the cutting points can be done with any ordinary grinder used for tungsten carbide, with maximum cutting speed of the drills given as up to 6 ins. per minute of concrete. Models drill glass, flat steel and rock, when imbedded in concrete, and can be furnished in sets, packed in special carrying kits.

Made by: Tilden Tool Mfg. Co., 1144 W. Washington Blvd., Chicago 7, Ill.

Reiner Drive Cleat Notcher Features adjustable Guage

A DRIVE CLEAT NOTCHER that will handle 20 gauge or lighter metal can be used for notching the end of drive cleats up to 3" in width and has an adjustable gauge to notch any width cleat. Its dies are made of two pieces of hardened steel and the tool has a stop to prevent the metal from projecting beyond the end of the dies.

The 4" wide, 13" long notcher can be mounted on a work bench or in the shop with clamps, bolts or screws, and can be operated by hand or foot.

Made by: Reiner & Campbell Co., Inc., 19 Euclid Ave., Newark 5, N. J.

Round out your REFERENCE SHELF

1. HEATING & AIR CONDITIONING

A comprehensive treatment of heating and air conditioning systems for residences, factories, office buildings, theatres, churches and auditoriums, by Allen, Walker & James. 667 pages, size 6 by 9 inches. 330 illustrations.

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Only complete, comprehensive boiler book. New and revised edition. Embraces ratings and specifications of boilers, old and new up to 2000 sq. ft. Handy size, 8 by 11 inches.

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These lessons are presented as the first steps in mastering air conditioning. They have been planned on the basis of first things first, and as it is apparent that no man can successfully handle air conditioning until he has mastered the principle of heating and handling air under pressure. 163 pages. Illustrated with diagrams and tables. By A. J. Mellish.

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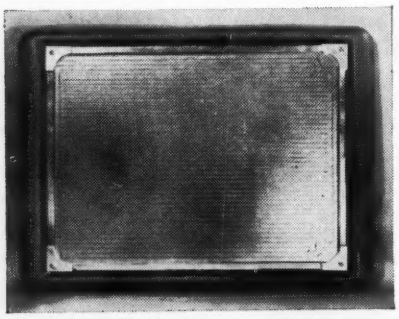
. . . . New Products

Continental adds Junior electric heating Panel

A 625 WATT Junior panel for electric heating in bathrooms and other small areas has been added to Continental's line. The unit measures 19" by 25½" and is available in either a surface or recessed model at 115, 208, 220, 230 or 245 volts.



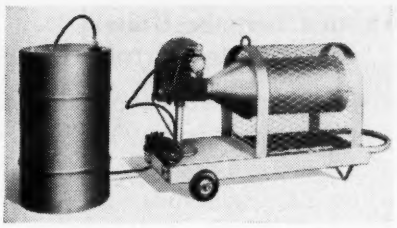
Each unit has a heating capacity of 600 cu. ft. when installed in a well-insulated building and has a rating of 2132 Btu/hr. Its glass heating element is 20 times stronger than ordinary glass and the entire panel is made up of a resistance grid of sprayed aluminum fused into tempered glass, set in an aluminum reflector pan and surrounded by a steel frame.

Made by: Continental Radiant Glass Heating Corp., 1 East 35th St., New York 16, N. Y.

Portable Eco-Temp Unit is oilfired, radiant Heater

AN ECO-TEMP portable, oilfired radiant heater produces 189,000 Btu/hr, burns No. 2 fueloil and requires only a single 110 V., 60-cycle single phase electrical connection. Its rapid rise to maximum temperature and wide effective heat area is described as making the unit adaptable to a number of uses including drying of plaster, paint and cement, thawing frozen areas or moving parts, space heating and tobacco curing.

Fuel is supplied to the heater through a hose attached to a fueloil drum, with consumption a maximum of 1.35 gph. Overall dimensions of the unit are 48" long, 18" wide, and 31" high, weight 175 lbs. It is moved like a wheelbarrow on a small, rubber-tired wheel and can be carried from

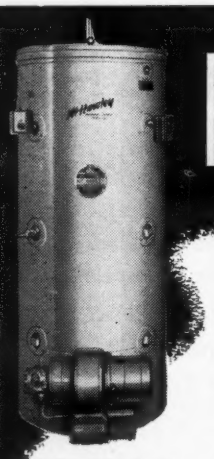


floor to floor by two men. Eco-Temp heaters feature all-steel construction.

Made by: Arthur C. Baumann, 7011-21 Grays Ave., Philadelphia 42, Pa.

Meriam single and multiple Tub low differential draft Gauges

MERIAM MODEL GP draft gauges, of the inclined tube liquid type, are low differential gauges and, in many cases, can be used as indicating flow meters in measuring low pressure air or gas flows. Single tube gauges have a cast aluminum body, with a clear, straight Pyrex glass tube gland-packed in the body frame to prevent leakage. A plate glass cover and frame seals the gauge interior from dust and provides excellent visibility. When the gauge



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(With Efficient ST* Principle)

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Richly styled, compact in size to save space, Mt. Hawley oil and gas fired boilers are real sellers — real goodwill builders — real money makers!

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Ideal for Convector, Radiator or Radiant Panel Heating

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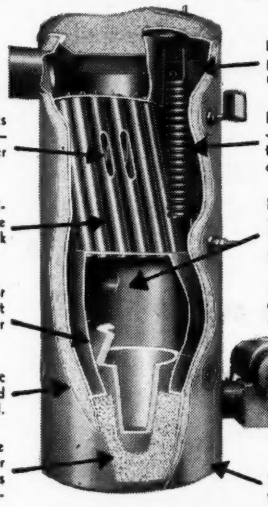

Large steam dome—permits fully submerged tubes.
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Extra heavy Banroc insulation—top and sides. Conserves fuel.
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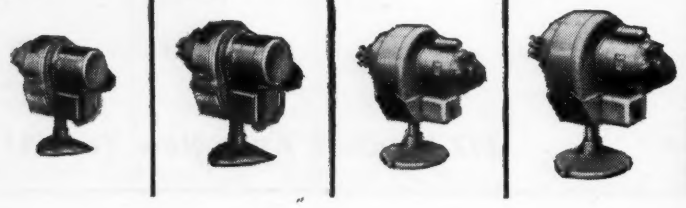
Model G-6. 5.00 to 9.00 G.P.H.
Model G-8. 9.00 to 20.00 G.P.H.



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PEORIA 4, ILLINOIS
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When you install or service furnace blowers, your good name is like an orchid. It depends on warm air. In fact the blowers you install must deliver warm comfort reliably and without fail, both for your customers' sakes and for yours. That's why so many heating service companies rely on Hoover Motors!

Hoover furnace blower motors give smooth, quiet, dependable service. They're dripproof, equipped with automatic thermal protection, designed for a 40° C. temperature rise. They're built like motors costing far, far more.

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Hoover Furnace Blower Motors available in ratings of ⅙ HP through ⅓ HP split-phase, and ½ HP through ¾ HP capacitor-start. All feature 1725 RPM speed, Gits oilers and a resilient base built to meet NEMA mounting standards. Automatic thermo protectors have been checked and approved by Underwriters' Laboratories.

Write today for complete information—on furnace blower motors or on motors built for other purposes.

THE HOOVER COMPANY
Kingston-Conley Division
68 Brook Avenue
North Plainfield, New Jersey

is mounted two knurled screws in the underside of the mounting bracket adjust for level position, indicated by a double hairlined level which is dowelled in place at the time the gauge is calibrated.

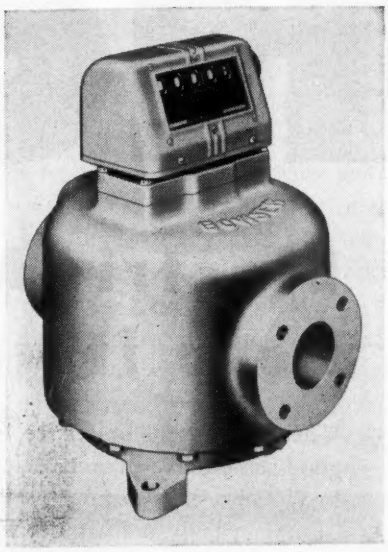
A plunger unit in the well adjusts liquid level to scale zero, with indicating liquid a mineral seal oil, colored red. Single tube gauges are built in ranges up to 4" of water pressure. From the ½" range through the 2" range the gauge is built in ½" steps with the scale graduated in 1/100 ins. of water pressure; above the 2" range the gauge is built in 1" steps graduated in 1/50 ins. of water pressure. A vented petcock vents the gauge to atmosphere when closed, for periodic checking of scale zero. Standard pipe size connections are ⅛", with ¼" furnished when the gauge is to be ushed as a low differential flow meter.

Two tube gauges, in combinations of any range from ½" to 2" of water pressure, cover the field of low pressures, drafts and differentials in furnace draft measurement, while three tube gauges add a vertical tube for reading pressures up to 4" of water.

Made by: The Meriam Instrument Co., 10920 Madison Ave., Cleveland 2, Ohio.

Add 70 gpm Meter to Bowser Xacto Line

BECAUSE of a need for liquid measurement in the 70 gpm capacity range, a model of this size has been added to the Bowser Xacto meter line. Equipped as standard with totalizer and large-figure counter, the meter can be furnished with either predetermined automatic shut-off or ticket printer. Connections are 2", flanged, and maximum working pressure is 125 psi.



Accurate measurement under varying flow rates is accomplished, says the manufacturer, due to the positive volumetric measuring principle of all Xacto models.

Made by: Bowser, Inc., 1330 Creighton Ave., Fort Wayne 2, Indiana.

Adhesive on Back secures Kling Felt Tape in place

KLING FELT, a reinforced felt tape with a pressure-sensitive adhesive back, has been announced for such uses as rattle and squeak deadening, sealing against dust and wind, thermal insulation and similar applications. The pressure-sensitive adhesive eliminates the need for gluing, with finger pressure the only force needed to secure it in place.

Available in rolls from ¼" to 66" wide, 1/64", 1/32", 1/16", 1/8" and ¼" thick, the tape also can be fur-

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SEALMASTER—(in both liquid and powder form)—for quick, reliable sealing of leaky boilers

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Mount Vernon, New York

Burns oil better
because it's made
only for oil . . .

SERIES C

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Amazing Econoloop changes temperature of water in radiators to suit outdoor conditions — causes longer circulator operation — more uniform heating — protects domestic water supply.

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OIL ECONOMY® BOILER
with amazing Econoloop®

Skilled INTERNATIONAL heating engineers have put every known and proven feature into this Series C Boiler for just one purpose—*to burn oil economically!* It's one of the smallest oil burning units in size — yet it is far superior in heat output to many larger, bulkier boilers. Cast iron for strength and durability, the Series C includes a pre-formed firing chamber, wet bottom, built-in domestic hot water heater, factory assembled sections, glass wool insulation on five sides—and the exclusive Econoloop for forced hot water systems. Complete with burner, controls, accessories and enameled steel jacket . . . it's the *modern* answer for every home where *comfort* and *economy* are vital. See the "C"—see why INTERNATIONAL says: "It's the best oil heat buy!"

See the "C" at your jobber's — or write

INTERNATIONAL HEATER COMPANY

UTICA 2, N.Y.

WESTERN OFFICE AND WAREHOUSE • 1933 WENTWORTH AVENUE, CHICAGO, ILLINOIS

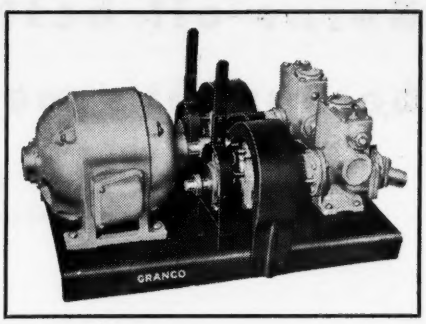
nished as a gasket, die-cut to specifications. Kling Felt does not require paper or other separation material between layers and consequently can be applied quickly.

Made by: Products Research Co., 5426 San Fernando Road, Glendale 3, Calif.

Granco multiple-pump Unit is compact and versatile

MULTIPLE-PUMP UNITS, added to the line of Granco products, combine the performance of the company's rotary positive displacement pump with new and improved features. They are designed for use wherever different liquids are to be pumped with a single compact unit and are described as being capable of handling anything that will flow through a pipeline. The multiple units can be furnished with bronze bearings having oversize oil reservoir or self-aligning ball bearings and are recommended for installation particularly where floor space is limited.

Each pump is controlled by individual oversize, manually-operated clutches, with other features including outboard integral ball bearings and heavy reinforced steel base plate and flexible coupling. Units, which are available with capacities from 90 to 300 gpm, 2", 2½" and 3" pipe sizes, require no priming or bleeding. Built-in relief valves with dashpot action are standard equipment on each pump.



Made by: Granberg Corp., 1308 67th St., Oakland 8, Calif.

Simplex offers Burner to use either Gas or Oil

THE SIMPLEX combination fuel burner has been designed to permit burning either fueloil or gas, employing basic principles functioning through the same synchronized control of the fuel and both primary and secondary air. This provides an intimate mixture of either fuel with air in correct proportions for high combustion efficiency.

The same fan unit is used when burning either fuel and the design and control of the projection of the fuel-air mixture from the burner nozzle permits the same design of refractory furnace to be utilized for gas or oil. Also, for both fuels the same electric control motor, mounted on the burner, operates oil and gas control valves and the primary and secondary air controls. Oil and gas valves are permanently located on and at the burner and do not require connecting or disconnecting when using either fuel.

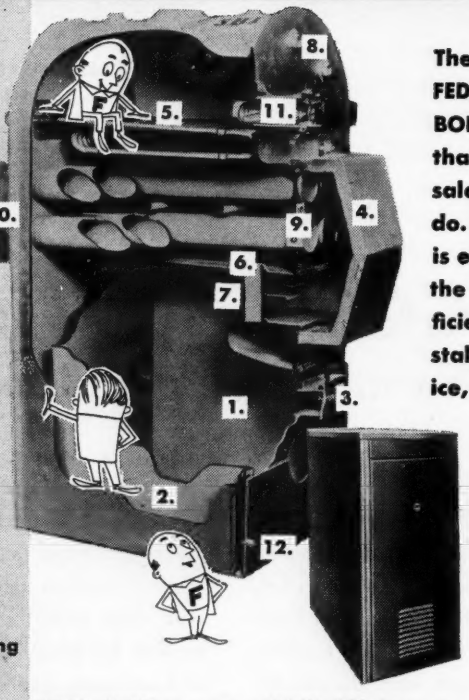
As an oilburner the unit is a standard Simplex pneumatic-turbine-driven type, with its rotary atomizing unit, operating on two enclosed, heavy-duty, automatically-lubricated ball-bearings, the only moving part. To convert to gas, the small atomizing unit is removed and replaced by a stationary adjustable gas deflector cone with one threaded point of connection. Entire changeover is said to

WE'VE GOT PLENTY OF GUTS!

THE KIND WE'RE PROUD TO SHOW!

FEDERAL LOW COST A.S.M.E. BOILERS

1. Large Furnace Volume
2. Water Leg Construction
3. Observation Port
4. Rock Wool Insulation
5. Federal Tankless Coils
6. Vertical Percolator Tube
7. 5/16" Steel Head Plates
8. 1/4" Wrapper Sheet
9. Expanded & Flared Boiler Tubes
10. Clean Out Door For Easy Cleaning
11. Low Water Cut-Off
12. Steel Plate Furnace Floor



The inside of every FEDERAL GAS OR OIL BOILER tells a story that no amount of sales talk could ever do. Every component is engineered to give the contractor an efficient, easy to install, simple to service, low cost boiler.

A BEAUT! Handsome, two-tone (blue & grey), baked enamel hammertone finished jacket. Built of heavy gauge sheet steel and glass wool insulated.

MODEL #FVW For small low cost homes with radiant heat, hot water or steam. 66,000 to 96,000 net B.T.U. output.

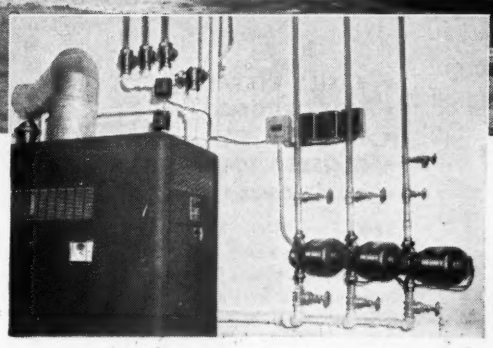
MODEL #FC Oil or gas fired units ideal for use with hot water, steam, or radiant heat systems. 77,000 to 312,000 net B.T.U. output.

MODEL #FD Ideally suited for launderettes and commercials. A stoker, oil or gas fired unit. 360,000 to 528,000 net B.T.U. output.

FEDERAL BOILER CO. INC. GRANITE & WEST STS., MIDLAND PARK, N. J.

FEDERAL BOILER CO., INC., General Offices Dept. FO-9
2610 E. Tremont Ave., Bronx 61, N. Y.
Please send me free bulletins.
Name.....
Address.....

Today's most modern homes . . .



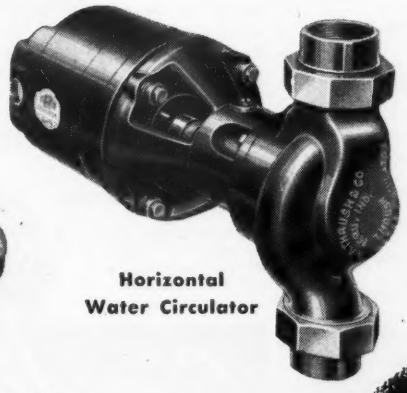
A SIMPLE ZONED SYSTEM

Notice the compactness of this three-zone Flow Control System and the inexpensive units used. Just a Circulator, a Flow Control Valve and a No. 201 Radiant Heat Control in each zone. There are no costly motorized valves no complicated devices to give trouble. Temperature in each zone is maintained automatically.

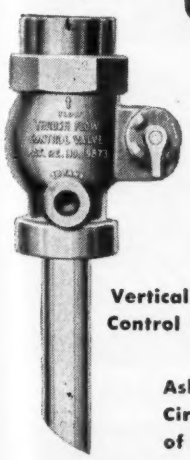
. . . are heated with

THRUSH *forced circulating* HOT WATER HEAT

HERE'S a beautiful new home heated economically with forced circulating hot water, with radiant coils in the ceiling providing completely automatic radiant heat in any weather. Thrush Flow Control System of Forced Circulating Hot Water Heat assures highest efficiency . . . uniform temperatures in every room . . . with no overheating. Room temperature is controlled within a fraction of a degree separately in each of the three zones. This is the heating plant your customers want. See your wholesaler today or write Dept. C-9 for more information.



Horizontal Water Circulator



Vertical Flow Control Valve

Ask for folder on Thrush Forced Circulating Flow Control System of Hot Water Heating.

H. A.
THRUSH
AND COMPANY
PERU, INDIANA

IT PAYS TO REMEMBER!

EVERY
OIL-BURNING UNIT
NEEDS a *Klemm*
FUEL OIL FILTER

Easy to Install . . . Big Market
Good Profit . . . Repeat Sales

You know better than anyone else how few oil-fired boilers, space heaters, hot water tanks, etc. are equiped with oil filters. Here's a ready-made market—*a profitable market*—for you to go after. Suggest a fuel oil filter on every service call, a high-efficiency KLEMM, of course—the only filter that has CHEMISTONE, the original controlled porosity filter element. Sell heating comfort . . . sell KLEMM! Easy sales! Good mark-up! Satisfied customers!

Order a stock from your jobber today

SHOWS . . .
TELLS . . .
SELLS . . .

Drop-in customers and shoppers are attracted by this eye-catching display. It's free with each order for 12 or more Klemm (Jr. Model) Oil Filters. Put it to work for you!

"Millions Since 1932"

Klemm

AUTOMOTIVE PRODUCTS CO.
1718 N. Damen Avenue • Chicago 47, Illinois
Mfd. in Canada by Elgee, Ltd. 410 Hopewell—Toronto
Export Div.: Guiterman Co., Inc. 35 S. Williams St., New York, N. Y.

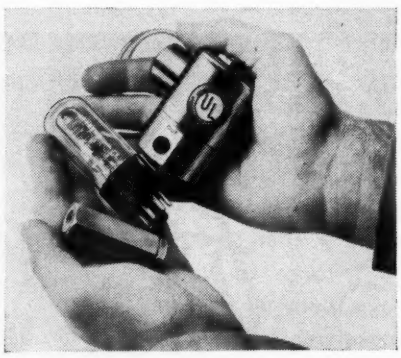
be made in less than 5 minutes time.

Made by: Simplex Oil Heating Corp., 7901 Oxford Ave., Philadelphia 11, Pa.

Skinner Solenoid used in Socony-Vacuum oil Control

A NEW APPLICATION of a standard Skinner V-5 stainless steel solenoid valve saw it combined recently with a time delay device by Socony-Vacuum's Technical Service Dept. The combination regulates oil flow to domestic oil-burners to synchronize with the moment when combustion conditions have been prepared by oil pressure and fan speed attaining their peaks.

At this point the Skinner valve opens and the oil is sprayed suddenly into the firebox, already filled with swirling air for fuel vaporization. When the burner stops the valve operates in reverse, instantly cutting off fuel flow and allowing the burner fan



to operate for a few seconds to complete combustion of the fueloil present in the chamber.

Made by: Skinner Electric Valve Div., The Skinner Chuck Co., Norwalk, Conn.

McNeil develops Furnace that can burn all Fuels

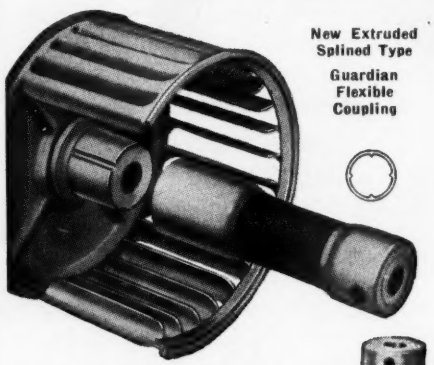
THE QUAD FURNACE, developed by Everett A. McNeil, has been designed to burn oil, gas, coal, coke, wood, waste paper or garbage. It resembles a conventional furnace, with a firing door and combustion chamber in the front for gas or oilfiring, plus another firing door and ash pit on the side for burning solid fuels. The gas or oilburners are interchangeable.

The furnace offers a solution to the user who has garbage or waste paper to dispose of, since it can be placed in the

5 WAYS BETTER

Guardian

FLEXIBLE COUPLINGS



New Extruded Splined Type Guardian Flexible Coupling

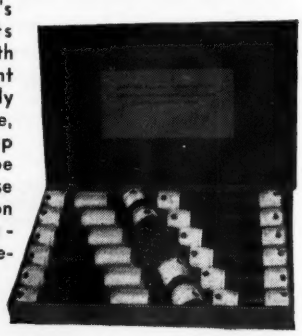
Regular set screw type

- EASILY INSTALLED
- MORE RUGGED
- TROUBLE FREE
- CLOSEST TOLERANCE
- QUIET OPERATION

You'll see why there is such a growing demand for Guardian flexible couplings when you use them on your first installation. The new extruded splined type can be installed easily in nothing flat. It fits to close .001 inch tolerance. Ruggedly constructed and specially treated to resist oil, Guardian couplings give the utmost in trouble-free performance. A variety of standard sizes or to your specifications.

GET THIS CONVENIENT COMPLETE SERVICE KIT

97% of today's requirements can be met with the assortment in this handy kit. Get one, use it and keep it filled to be ready for those extra profits on flexible coupling replacements.



WRITE FOR BULLETINS on the Guardian line of valves for water, oil heat and radiant panel installations.

Guardian
PRODUCTS CORP.
COUPLING DIVISION

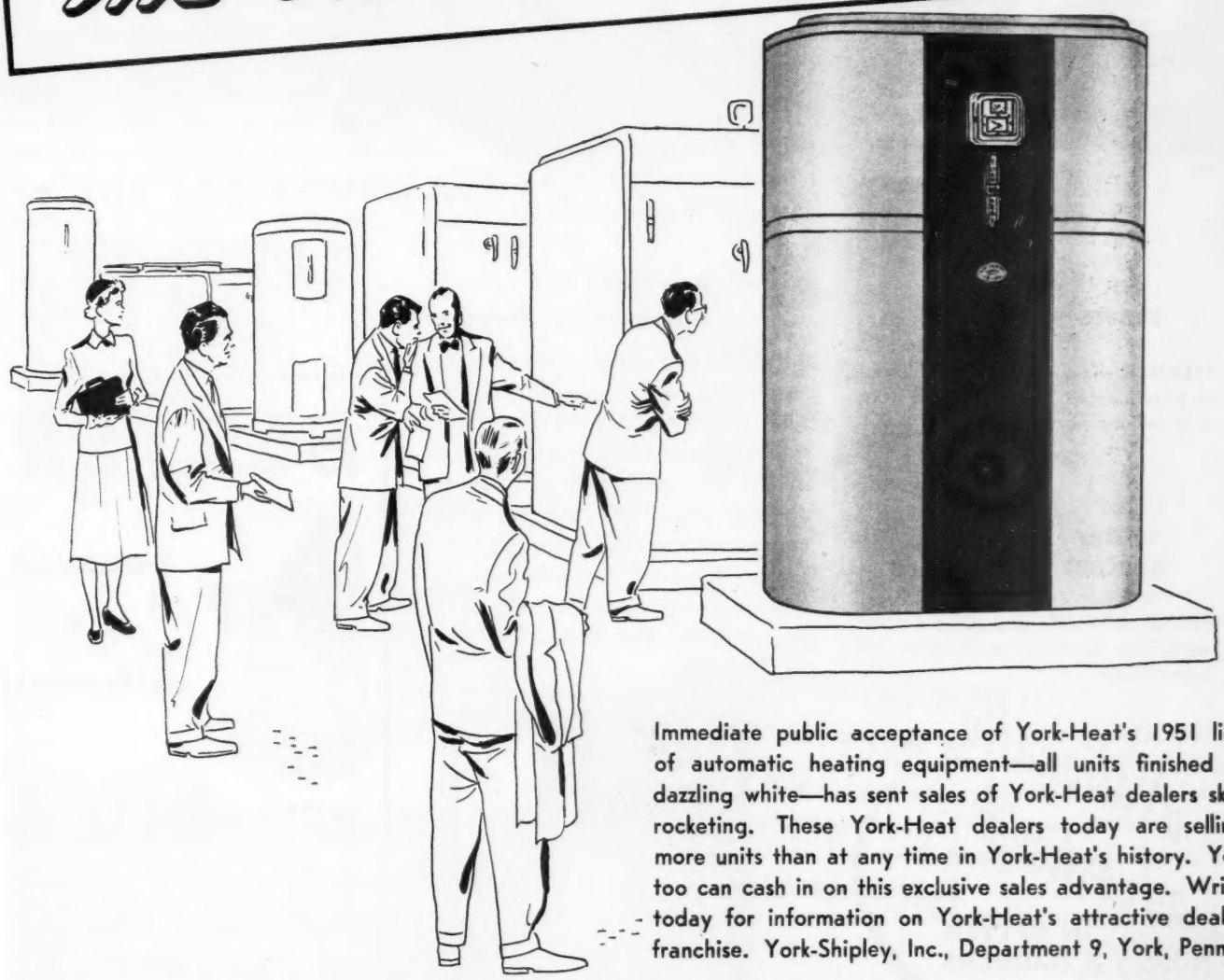
Dept. F-91, 1215 East Second Street

Michigan City, Indiana

ANOTHER YORK-HEAT EXCLUSIVE

that helps YORK-HEAT dealers make more sales

THE GREAT WHITE LINE!



Immediate public acceptance of York-Heat's 1951 line of automatic heating equipment—all units finished in dazzling white—has sent sales of York-Heat dealers skyrocketing. These York-Heat dealers today are selling more units than at any time in York-Heat's history. You too can cash in on this exclusive sales advantage. Write today for information on York-Heat's attractive dealer franchise. York-Shipley, Inc., Department 9, York, Penna.

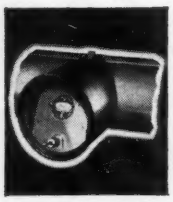
A PRODUCT OF YORK-SHIPLEY, INC., YORK, PA.

YORK 4h HEAT

Oil and Gas-Fired Boiler Units, Winter Air Conditioners and Burners—Gas and Electric Water Heaters—Oil and/or Gas Fired Steampak Generators and Industrial Burners.

CONTROLLED DRAFT BY
field
BAROMETRIC CONTROLS

for automatic heating plants

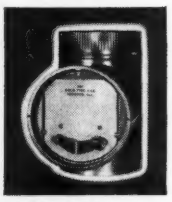


FIELD TYPE M, first and finest for all types of automatic heating plants.

for hand fired furnaces

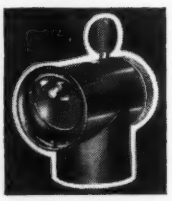
FIELD BAROCHEK, combination check damper and barometric draft control.

for stoves



FIELD R series and "SCOTTY", pre-set or adjustable, to bring out the finest in stoves and ranges.

for water heaters

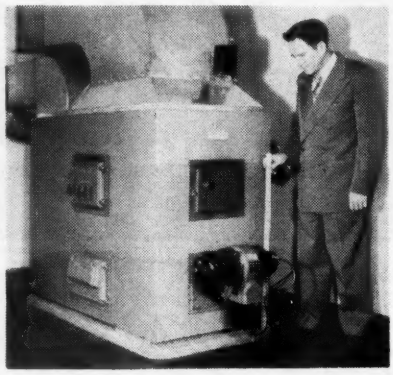


FIELD RNA-W, pre-set precision made, the finishing touch to a fine water heater.

Nationally advertised
IN BETTER HOMES & GARDENS

field CONTROL DIVISION
H. D. CONKEY & CO., MENDOTA, ILL.
AFFILIATES:
Conco Building Products, Inc.
Brick - Tile - Stone
Conco Materials Handling Division
Cranes - Hoists

side firing chamber while the oilburner is being used. Even wet garbage is quickly dried out by the heat from the burner and burned. In the event of breakdown, emergency or other con-



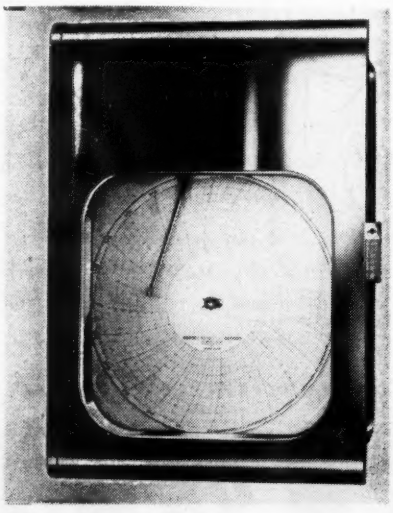
dition that makes it advisable to burn solid fuel, the side fire chamber can be used constantly. A removable drawer facilitates disposal of ashes.

It is expected that production of the units will get under way shortly.

Made by: McNeil Fuel Co., 6337—14th Ave., Kenosha, Wis.

Bristol announces new running-time Recorder

A NEW LINE of running-time recorders has been added to the Bristol line. They record on a chart the operating time of production machinery and similar equipment, with the chart recording total "on" time in hours, minutes and seconds for a given period. "Time off" periods also are shown on the chart, as well as the time at which they occurred.



The recorder magnifies the running-time readings so that total operating time can be determined to within a few seconds. Models are available for wall, flush-panel or portable use. Information on models, ranges, specifications and uses is contained in bulletin OP1504.

Made by: The Bristol Co., Waterbury 20, Conn.

Crise furnace fan Control with visible scale Settings

MODEL FAF-15 CRISE two-speed furnace fan control features visible scale settings and temperature indication. It has a bi-metal helix temperature element in insertion lengths up to 18"; control case measures 5¼" wide by 3½" high and 1¾" deep. Available with or without swivel mounting.

When the furnace bonnet temperatures rise to low speed fan setting, the fan starts and switches to high speed only when bonnet temperatures reach the higher setting. The action reverses as bonnet temperatures fall. The control carries two separate electric circuits, with individual switches.

Made by: Crise Controls Div., Acro Mfg. Co., Columbus 16, Ohio.

BETTER

because it's different!

RECTORSEAL #2

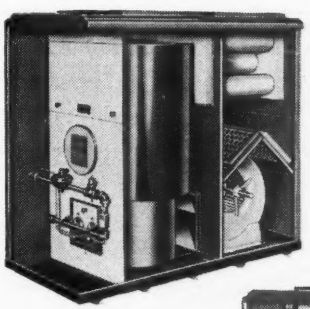
Proved by 15 years service in the oil fields . . . proved for your industry by 6 years service in all parts of the country Rectorseal is different. Thin in the can, it thickens in the joint to make a perfect, permanently leak-proof seal. SEND FOR FREE SAMPLE! Use it on your next job and prove to yourself that Rectorseal #2 is the finest sealing compound you ever used.

RECTORSEAL, Dept. O
2215 Commerce St., Houston 2, Texas

RECTORSEAL
Patented. Trade Mark Reg. U. S. Pat. Off.
NUMBER TWO

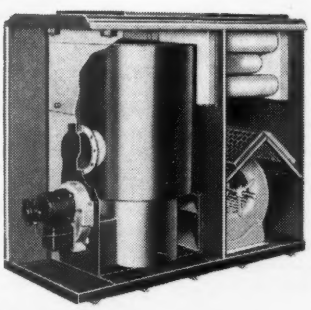
GAS?? OIL?? NO Sales are LOST WITH MONCRIEF!

THE SAME FURNACE



as a GAS Fired Unit

as an OIL Fired Unit



You get this 2 in 1 CHOICE because most MONCRIEF Units are built and approved and are equally efficient as Gas-Fired Units or as Oil Fired Units

Customer doesn't know if he can get Gas?

Sell him MONCRIEF

the units that have been designed and approved to burn either

GAS or OIL

• • •

Install the Unit NOW! Install either a MONCRIEF Gas Burner or a MONCRIEF Oil Burner or—decide later!

THE HENRY FURNACE COMPANY • *Medina, Ohio*

HEATING AND AIR CONDITIONING UNITS — MONCRIEF SINCE 1895 — FURNACE PIPE AND FITTINGS

Book Shelf

Taubeneck Book on Specialty Selling

OUR FIRST ENCOUNTER with George Taubeneck, author, rather than George Taubeneck in his usual job, Editor of *Air Conditioning & Refrigeration News,* was several years ago when we read his sometimes hilarious "One Foot In The Door," in which he told how to sell appliances and keep your good humor. Time has aged and somewhat sobered Mr. Taubeneck, author, but it has also increased the value of his writings for dealers. His latest effort has a stupendous 633 pages, and practically every one of them carries some idea or observation that will either *tell* the reader how to benefit himself, or make the reader *think* of some parallel method of benefiting himself.

The book "sells" the specialty dealer business to you in the first chapter, and thereafter enlightens, goads, stimulates, enriches, inspires, teaches and actually blueprints the reader's progress toward success and profits. No phase of the business is neglected.

Some of the chapter headings may indicate its scope: "You Can Enjoy Life as a Specialty Dealer," "Now, About Competition," "Do You Have What It Takes," "Where You Should Locate," "What Do You Put On Your Floor," "Be A Go-Getter," "Invite Them Inside," "Where and Who Are Your Customers," "Rewards for Discovery" (contests), "How To Advertise By Mail," "Salesmanship-In-Print," "Salesmen Are Restless," "Show'em, Then Sell'em," "Repair Service Builds Profits," "Telephone Magic," "Trade-Ins—Big Bugaboo," "Selling to Farmers," "Public Utilities—Good and Bad," "Twas The Night Before Christmas," "Bookkeeping Isn't So Simple As It Sounds," "Local Dealer Associations," "Getting Your Ideas Across." The book is spiced with incidents and stories to illustrate many points, though they are generally of less value than the pointed observations of the gifted author.

In Chapter 22: "And How The Money Rolls In," he states: "Specialty Dealerships are one of the last fine strongholds of private enterprise. They provide a maximum of reward for services rendered, along with a minimum of interference by the all-powerful national government." He then tells in specific detail the story of the New Jersey firm that sells 400 electric refrigerators a year without a selling organization. Just one of hundreds of case studies to illustrate points.

This is an excellent book, and dealers in heating equipment can profit through reading it, and keeping it for reference.

Both Feet On The Ground, by George F. Taubeneck. Cloth bound. 633 pages. Conjure House, publishers, 450 W. Fort St., Detroit 26, Mich. $5.95 per copy.

Oil-Heat Institute issues Handbook of Oil Burning

ONLY THE FEW BOOK LOVERS in the oilheating industry will sit right down and read every one of the almost 1000 pages of the "Handbook of Oil Burning," a brand new book throughout,

EXTRA! STOKOL OIL HEAT NEWS EXTRA!

STOKOL ENTERS OIL BURNER FIELD

FOUR MODELS RANGE FROM ¾ TO 20 GPH

STOKOL—a leader in the Stoker field for many years is now expanding its automatic heating line to include what promises to become the most competitive oil conversion burner line on today's market.

Model SD-2—available with adjustable pedestal or flange mounting for easy conversion installations.

4 New Models!

SD-2 — ¾ — 2 GPH
SD-6 — 2 — 6 GPH
SD-12 — 6 — 12 GPH
SD-20 — 12 — 20 GPH

The name STOKOL needs no introduction. STOKOL STOKERS have supplied smooth, even, automatic heating comfort to homes and business wherever coal has been used as fuel for heat and power. Now STOKOL'S name on their oil burning units is your assurance of dependable automatic oil heat. Underwriters approved.

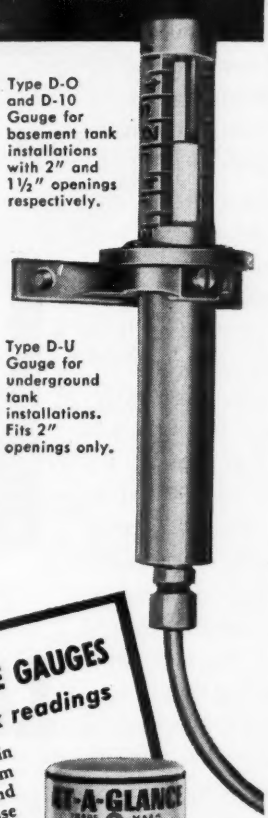
DEALERS: Investigate STOKOL—the franchise with a future. Write for complete information on STOKOL oil heating equipment, dealer franchise, and territories available.

STOKOL
DIAMOND IRON WORKS, INC.
AND THE MAHR MANUFACTURING COMPANY DIVISION
18TH AVE. N. AND 2ND ST., MINNEAPOLIS 11, MINNESOTA

AT-A-GLANCE

Sentry TANK GAUGES

REMOTE READING
INDOORS • OUTSIDE
UNDERGROUND



Type D-O and D-10 Gauge for basement tank installations with 2" and 1½" openings respectively.

Type D-U Gauge for underground tank installations. Fits 2" openings only.

ACCURATE, DEPENDABLE, WEATHERPROOF GAUGES

Easy to install... Easy to read!

Unaffected by specific gravity changes or variations, Sentry Remote Gauges accurately indicate liquid level at all times. Simplified mechanical operation eliminates unnecessary fittings, bulbs or levers for serviceman to tamper with as well as his need for access to building. Remote Gauge may also be combined with At-A-Glance Direct Gauge, shown below, for readings at both tank and remote location if desired. Non-corrosive, stainless steel and brass extension lines connect tank float with heavy-duty cast aluminum, weatherproof, thermometer type indicator — calibrated in fractions. Unconditionally guaranteed. Write for descriptive literature.

Sentry AT-A-GLANCE GAUGES

For accurate DIRECT tank readings

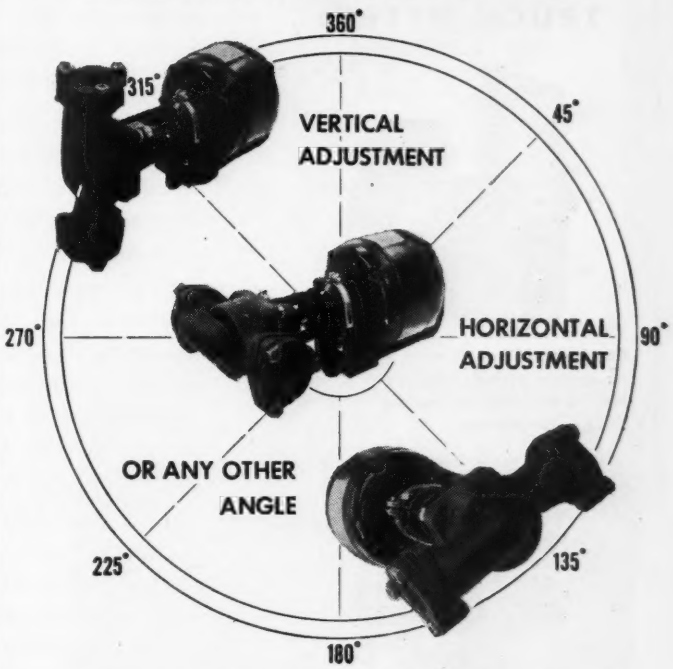
Fastest selling, most popular gauge in the industry. Simplified mechanism eliminates gears, cams, springs and magnets that wear out and cause trouble. Durably constructed with patented assembly featuring unbreakable, fog-proof, heavy-duty double plastic domes with printed calibration scale between for clear, easy-to-see readability from any direction. Gauge is Underwriters' Listed and will withstand in excess of 70 lbs. air pressure per sq. inch. Entire unit is non-corrosive and guaranteed leakproof under pressure filling and against defective operation, workmanship and materials. Quick, simple to install even on partially filled tanks. Write for complete descriptive literature.

KRUEGER Sentry GAUGES

GREEN BAY • WISCONSIN

LOOK to... Econo for MORE

ECONO CIRCULATORS



"Instantly" ADJUSTABLE TO EVERY ANGLE

Econo Circulators are instantly adjustable . . . by loosening one clamp entire pump assembly may be set for any direction of flow . . . any point on a 360° adjustment. Nothing to take apart, no bolts to remove, no gaskets to replace, no leakage.

Open fin impeller design • Will not overheat • Provides sustained head pressure • Exclusive Neoprene vibration dampers reduce noise transmission.

See your jobber or write for catalog

MFGS. of CIRCULATING PUMPS, LOW WATER CUTOFFS
FLOW VALVES HEATING SPECIALTIES

ECONO PRODUCTS COMPANY

17 State Street New York, N. Y.

FACTORY: EAST HADDAM, CONN.

published by the Oil-Heat Institute of America, and ably edited by Frank H. Faust and G. Theodore Kaufman. However, in the nine sections of the book are parts of immediate interest to every man in the oilburner and fueloil industries, and many pages contain basic educational material needed as the foundation of knowledge of every man interested in oilheating.

Section I, "Oil as a Fuel," gives an excellent idea of the thoroughness and educational value of the book. Starting out with 31 pages on petroleum, it goes on into details of fueloil for domestic and industrial use, then covers other fuels and comparative costs, winding up finally with distribution and fueloil delivery problems.

Section II, "Combustion of Fuel Oil," is packed with information vital to combustion testing enthusiasts of engineering bent, and deals in detail with such problems as the chemicals used in analyzing flue gases, and the niceties of the different types of instruments used widely for field and laboratory studies of flue gases.

Oilburners as such are covered by types in Section IV, 88 pages being given to pressure burners, low pressure burners, wall flame rotaries, horizontal rotary burners, atomizing vertical rotaries, and burners of the perforated sleeve and vaporizing pot types.

The "Handbook of Oil Burning" is particularly dependable and authoritative, as well as complete and well balanced, because it was produced through the cooperative effort of many of the best informed men in the oilheating and fueloil industries. The knowledge and recommendations thus given out by these men should go far towards assisting and advancing the science of oilheating.

There's lots of interest in the book, incidentally, for the small-town oilburner dealer and salesman, and the man working his way up in the industry through doing dirty-hand installation and service work. Section VIII, containing 184 pages and amounting to a book in itself, gives practical instructions on the installation and servicing of practically all types of burners. "Handbook of Oil Burning," Frank H. Faust, Editor-in-Chief; G. Theodore Kaufman, Editor. Cloth bound. 978 pages of regular textbook size. Published by Oil-Heat Institute of America, 6 E. 39th St., New York 16, N. Y. $10 per copy.

New Book issued contains oilburner Specifications

READY FOR delivery now are copies of the 1951 Specifications Book of Oilburners and Fueloil, last issued in 1947. The new edition repeats all the oilburner specifications which appeared in the previous book and adds

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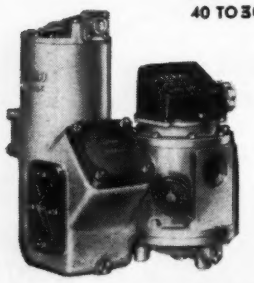

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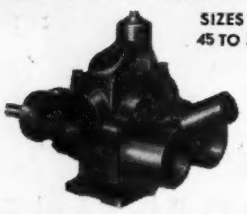

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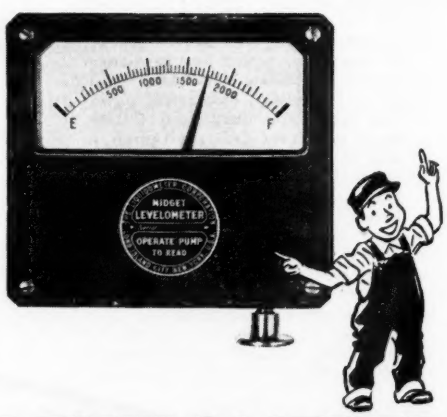

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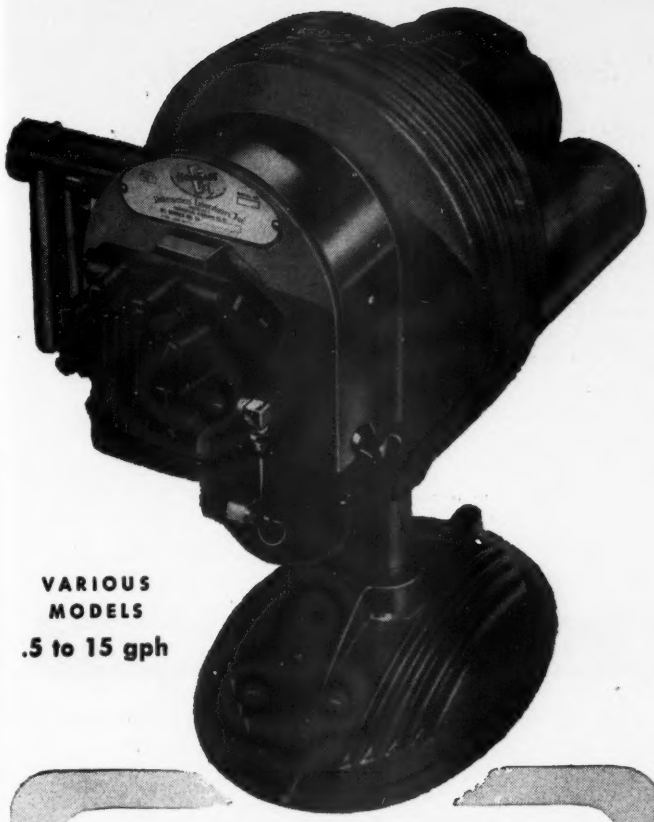

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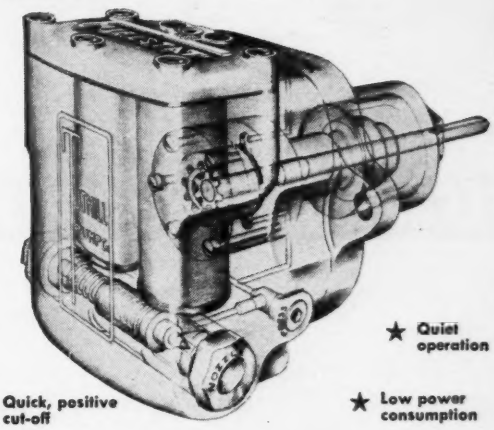

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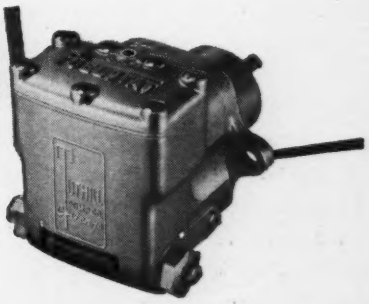

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. . . . Book Shelf

information on current models and those announced in the interim.

The new compilation again has been sectionalized and indexed for ready reference and in its three main sections reproduces data on conversion oilburners, boiler-burner units and furnace-burner units. In the section on conversion oilburners more than 1400 models are included, arranged alphabetically by trade name and showing capacities, method of atomization, air source, type of ignition, oil feed, fuel used and motor size.

Sections II and III, containing information on boiler-burner and furnace-burner units, respectively, reproduce trade names, models, minimum and maximum capacities in gph, type of oilburner and grade of fuel used. For the boiler units the Book also indicates whether they are of cast-iron or steel construction.

All in all there are approximaely 700 trade names listed for the more than 600 manufacturers whose products are covered. Information on current and new models was obtained from questionnaires sent in by the individual companies. In addition, symbols are employed in the listings to indicate if the data have been reproduced from the previous edition or if the models have been discontinued.

Commercial Standard CS12-48, covering fueloils and currently in effect, is reproduced in table form.

The pocket-size 1951 Specifications Book of Oilburners and Fueloil contains 220 pages, of which approximately 180 contain equipment specifications. It has been prepared especially for oilburner dealers, servicemen, oil salesmen, manufacturers and their representatives who frequently must determine specifications for current and obsolete equipment they encounter in the field.

Published by FUELOIL & OIL HEAT, 232 Madison Ave., New York 16, N. Y. Price is $1.25 each, with quantity discounts offered on purchase of 12 or more copies.

GORMAN-RUPP CO., MANSFIELD, OHIO, has issued a catalog displaying models of its centrifugal, self priming, fuel transfer pumps. The catalog contains cut away diagrams, several performance charts, and other engineering data. It also contains photographs of these models in specific applications and of other types of the company's product.

THE AMERICAN LAVA CORP., CHATTANOOGA, TENN., has mailed out a bulletin containing specifications of the company's ceramic ignition insulators. The folder is illustrated with photographs and drawings, and includes an Underwriter's Laboratories report and information on special insulators.

WHEELING FURNACE CORP., MARTINS FERRY, OHIO, has distributed two folders describing its warm air Champion and Tuberator furnaces. The folders are illustrated with cut away diagrams of the furnaces and list specifications and ratings.

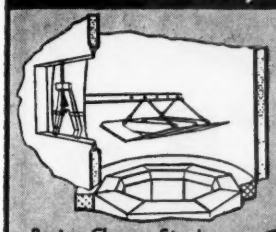
EAGLE-PICHER SALES CO., CINCINNATI 1, OHIO, has published a small, fully illustrated booklet describing "Super 66" insulating cement. The booklet contains microscopic comparison photographs and a description of the properties and possible applications of this cement.

SHARPSVILLE STEEL FABRICATORS, INC., Sharpsville, Pa., has printed an illustrated folder carrying pictures of truck chasses equipped with tanks manufactured by the company as they appear in service, and listing types and sizes of tanks available accompanied by an itemization of standard and special order equipment for their units.

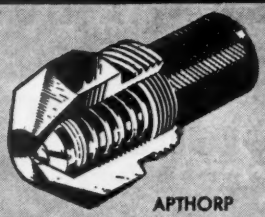
ARTHUR A. OLSON & CO., Canfield, Ohio, has had a catalog published which presents the applications and specifications of the Olson direct fired warm air heater. Several photographs and drawings show these heaters in industrial applications and diagrams, showing installations fired with several types of fuel, are included.

PENTWATER MACHY. CO., PENTWATER, MICH., has published a brochure containing information, installation diagrams, and specifications of four models of its centrifugal fuel pumps.

FOR Quality INSTALLATIONS



Boston Chrome Steel "HANG-DOWN" BAFFLE



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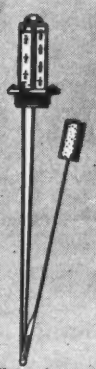
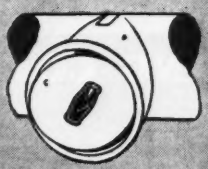
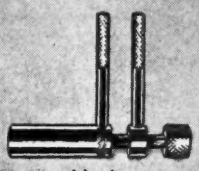


Clearview OIL TANK GAUGE



The Boston Standard DRAFT CONTROL



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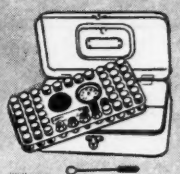

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Oil Heating Supplies Division, Manufacturers, Lynn, Mass.

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Combustion testing will pay you big dividends in gaining you competitive leadership and neighborhood recognition of your competence as a heating expert. The combustion-testing kit shown above contains precision-made, quality instruments with which you can make fullest use of your know-how in making a fuel conservation survey, adjusting any make and type of oil burner for clean, trouble-free and economical operation, or running an efficiency test which will convince even the most skeptical customer on the need for replacement or modernization.

The FYRITE Utility Kit contains instruments for measuring not only CO_2, stack temperature and draft, but smoke in the flue as well. The inclusion of the smoke-measuring instrument is a forward step of significant importance to alert heating dealers and service men. Checking the flue gas for both CO_2 and smoke makes possible to adjust the burner with speed and ease for highest possible combustion efficiency, as well as for clean burning of the fuel resulting in heating plant performance that satisfies customers and safeguards against costly service requirements.

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The FYRITE Utility Kit shown above is part of the complete line of Bacharach Service Instruments for the Heating Trade which, in addition to Combustion Testing Kits, includes Temperature Recorders, Grille Velocity Indicators, Pyschrometers, and specialized oil-burner servicing equipment. Your wholesaler will gladly supply any of these instruments.

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For Radiators

Readers' Problems

Q. Since its installation four years ago, this gun burner has been using #4 oil with two 60° nozzles, one 6.0 and one 7.0 gph, total 13 gph.

The viscosity of the last load of oil went up to 150. The fire became large and smoky and burned off the back wall. I put in two 5.0 gph 60° nozzles, but the flame still blew back against the rear wall and was smoky. Then I put in an 8.0 gph single 45° nozzle and raised the pressure quite some. This cleared up the fire nicely, but the flame still bores into the back wall causing carbon formation every day, though it is a nice bushy flame.

As yet I haven't tried an 8.0 or 9.0 nozzle of 60° angle because the dual 60° nozzles gave a flame that bounced off the back wall too.

We realize this gun burner is intended for #2 oil, but the owner insists upon #4 oil since he's had fairly good service from the burner.

Have you had any experience with problems of this sort?

H. J., Clifton, N. J.

A. Assuming that you are determined to continue your efforts to use the No. 4 oil on this installation, you should work in the direction of obtaining (1) better atomization, and (2) higher flame and firebox temperatures. Better atomization will cause spraying of smaller oil droplets or particles into the firebox, so will reduce or eliminate the tendency for large droplets of oil to reach the back wall without being vaporized and burned en route. Higher flame and firebox temperatures will cause oil droplets of a given size to burn more rapidly as they travel through the firebox, thus also will help eliminating the impingement and formation of carbon on the back wall.

Regarding better atomization, you were wise to increase the atomizing pressure, but you should go further, use a pressure gage, and adjust to the maximum pressure for which the oil-handling parts of the burner are designed. Desperately trying to get good results under such conditions as you face, some service men use 150 lbs. atomizing pressure, while others use 200 lbs. Write to the manufacturer of the fuel unit used on the burner, and find out the maximum pressure the unit should be set for. Also regarding better atomization, you did well to try different nozzles, but may obtain best results only after obtaining and trying out a still wider variety of nozzles. Using the unusually heavy oil, nozzles made for lighter oil will perform much differently than their gph and angle markings might lead you to believe. Write to nozzle manufacturers about obtaining nozzles made for this heavy oil, and marked in terms of their performance using it.

Adjusting for high CO_2 will give the high flame temperatures. Consider also making the side and rear walls somewhat higher, as probably this can be done easily. Use of a high back wall having a decided step-in or corbel design, to make the wall extend forwards over the flame, should help considerably. Use insulating firebrick good for at least 2600° if you add to the height of the side or back walls; such brick give high flame temperatures.

Feeding the nozzle warm oil will help, even if the arrangement you use gives the nozzle warm oil only after the burner has been running a minute or two. Carefully engineered to heat the oil to only the temperature you desire, an arrangement that warms the oil flowing through the suction line to the burner may help you much.

* * *

Q. A year ago we installed a burner and boiler in a fairly old house. Ever since we have had a continuous condition of oil soot in the living quarters of the house. After checking all the factors that make a good installation, we called in a representative of the

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Retort Cement

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Here is a cement, developed by Pecora, to specifically meet the exacting requirements of installations that must cope with wide temperature extremes... a practically indestructible binding material that is absolutely fire-proof... resistant to acids and corrosion... burns hard without cracking and is completely odorless... non-porous and not subject to air leakage. Pecora Asbestos Retort Cement is the ideal material for mounting furnaces, heaters, stoves... for cementing joints exposed to intense heat. Iron will melt where this cement will stand!

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A durable, dependable sealing compound that will maintain an air-tight seal despite vibration.

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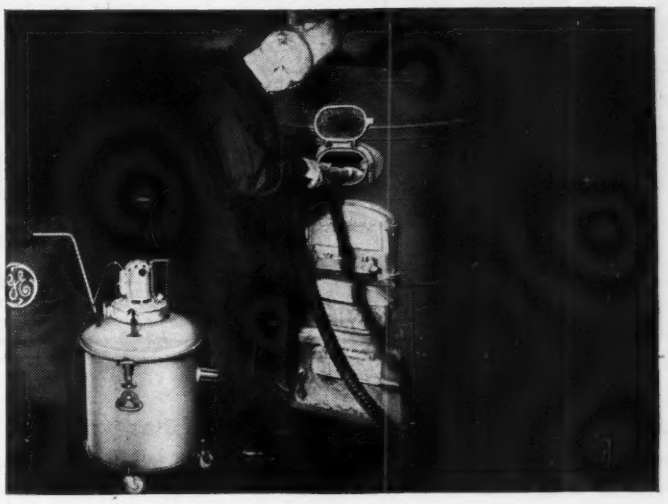
MAKE YOURS A
Year-round Business
with slack-season Furnace Cleaning jobs!



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Your spring and summer slump can be *busy* and *profitable* seasons for you if you take advantage of what these modern G-E cleaners have to offer. With a little effort on your part they will do more than their share toward keeping your crews *profitably busy* during the slack fuel season.

And these cleaners are compact, powerful, efficient . . . easy to operate and move about. They surely help you do the work and do it *well* while cutting your cleaning time.

Here's an ideal way to increase your annual volume.

Each unit converts quickly to powerful *blower* action for loosening soot in stubborn corners. Special G-E Furnace and Boiler cleaning equipment includes Chimney Flue Brush, Duct Brush, Shield, Crank and 32 feet of extensions.

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1285 Boston Ave., Bridgeport 2, Conn.
Without obligation, please send complete details on heavy-duty cleaning equipment.

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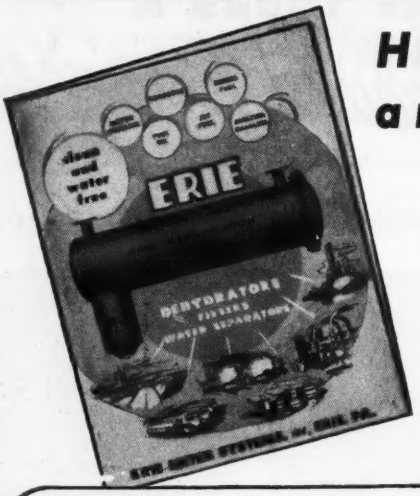
CITY..... STATE.....



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Be first in your market to offer absolutely clean and crystal clear fuel oil. Remove the solids and all free water from your fuel oil to protect your customers' oil burners. Add this service to make your product better. The Erie Dehydrator developed at first for aviation fuels is now applied in scores of ways to remove sludge, dirt and water from petroleum liquids.

. . . . Readers' Problems

burner manufacturer. After a thorough examination of the job, his reaction was that we could do nothing to improve the installation. However, we agreed that the one shortcoming was that the chimney had no flue lining.

Later I went back to inspect the chimney from cellar to the roof but could find no evidences of soot deposits in any one particular area. The area around the boiler and smokepipe is exceptionally free of soot, and the cellar windows show little evidence of soot particles.

Could the trouble be caused by lack of ventilation near the boiler? Should we make further chimney tests? The draft is exceptionally high at all times.

E. S. P., Rahway, N. J.

A. From what you say, we believe that ordinary household dirt and dust, not soot, may be what is causing the complaints. In cases of similar complaints, ordinary dirt and dust continued to be noticed after thorough and expensive steps were taken to arrive at combustion much cleaner than the jobs gave originally. Use a smoke checking instrument to evaluate the extent of incomplete combustion. Switch the burner to kerosene or No. 1 oil for a month or so and again check the smoke. If you gain much in the way of reducing the smoke but find no improvement in what is called depositing of soot in the rooms, you can conclude the burner is not causing the dirt in the house.

The need for additional boiler room ventilation does not seem related to the trouble. However doublecheck on this by keeping a basement window open about a quarter of an inch. The high draft is a good sign; a chimney full of air leaks and gas leaks, because it lacks a flue lining, would not give high draft. Install a good draft regulator, if the job lacks this.

It is possible to take steps that produce much cleaner combustion than usually is obtained on typical installations, and to settle all questions on this installation you may want to take these steps. If the job has an ordinary firebox, remove it and install a special firebox made of insulating firebrick good for 2000°. This new firebox should be designed for precisely the lowest gph rate which will heat the house, and should have exceptionally high side walls to provide exceptionally clean combustion. Make the walls about six inches higher than usual. Use a step-in or corbel design for the back wall, and perhaps also for the front wall. You can use an excellent over-fire baffle to arrive at clean combustion. Special steps can produce combustion so clean that the products

ONLY McCORKLE CONTROLS
for Vaporizing Oil Burners

give you this combination of vital features

- Patented dual blade bi-metal assembly—insures trouble-free operation – supplies a wide margin of *extra* power.
- More rapid heat transmission.
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of combustion can be poured into a room without putting soot or odors into the room.

Minimize any tendency towards incomplete combustion on cold starts by using a gph rate so low that the burner tends to run continuously for about four hours on coldest mornings, and by using control adjustments or arrangements that give oilburner "on" periods at least 20-minutes long. The burner that starts and stops much more often than necessary, and that runs only about five minutes at a time, makes decidedly more smoke and soot than the burner that starts but a few times a day and that runs 20 or 30 minutes, once started.

Use all the knowledge and skill you possess regarding firing heads, nozzles, atomization, etc. Wind up with a job that can give 13% to 14% CO_2 with no show of chimney smoke, and with a low reading on a smoke indicating instrument, then tune for 9% to 10% CO_2. After all, oil can be burned so cleanly and completely that the products of combustion can be used to bake food products and to dry silk, and by arriving at exceptionally complete combustion on your trouble job you can end all suspicion concerning soot from your oil flame.

* * *

Q. Why on p. 64 of your December issue, did Sparky our friend give the old motor windings a coat of varnish for luck, after cleaning up the insides of the burner motor like new?

H. L. P., Ilion, N. Y.

A. Because it was aged, chipped and cracked, especially after Sparky got through cleaning the motor, the old varnish no longer protected the motor windings against moisture, dirt, and lubricating oil. Sparky tried to give the windings some of the varnish protection they had when new.

* * *

Q. This customer has a hot water heating system with a 1½" circulator. The system is old gravity type, using 130° water. The customer is building in the basement a playroom 24' x 12' x 8'. Hanging from the ceiling of the playroom is 70 ft. of hot water supply and return piping, pipe sizes 1¼", 1½", and 2".

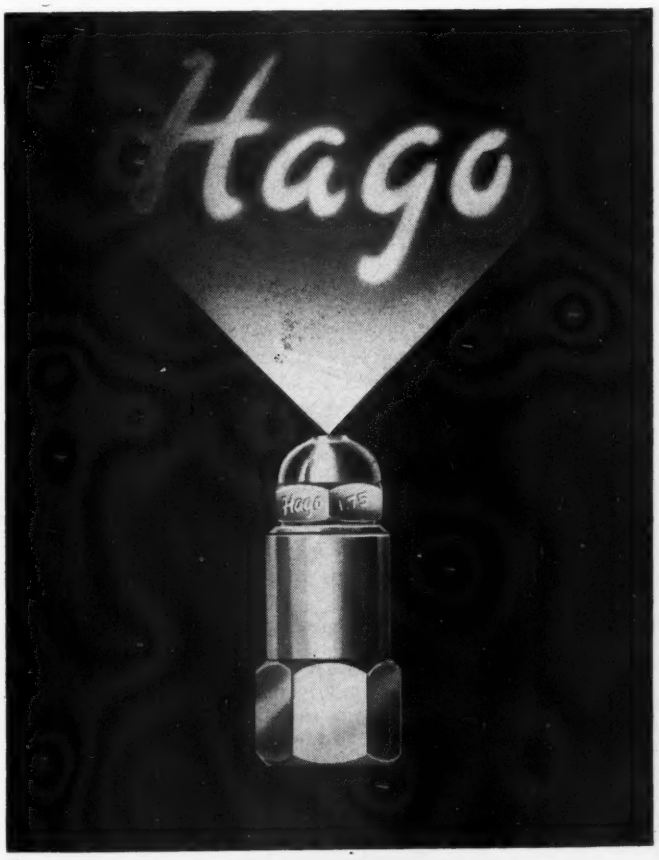
With the above piping left uncovered, the room will hold a temperature of 64° on a morning when the outside temperature is 5° above zero.

Will the addition of fins, as used in industrial radiation, raise the temperature of this room to 72° or more with zero outside? Will the effect of these fins so cool the supply lines that the radiations will be too cool to heat the rooms they are in? All the radiators are large, and there is plenty of radiation. Could the boiler temperature be raised to overcome this loss? We figure the heat loss of the room is 3,000 Btu.

Any suggestions you offer will be appreciated.

K. S. R., Herkimer, N. Y.

A. Installed in the return lines of the forced-circulation system, the sections of finned pipe you describe would give off the heat you desire in the basement playroom, depending of course on your installing enough of the finned pipe. However, it would be best to install the finned pipe relatively low in the basement room to put the



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heat where heat is needed and to warm the floor. In addition, the appearance of the finned pipe may not be pleasing in the newly-finished basement playroom. Enclosing the finned pipe to improve its apearance and protect the fins may please the owner, and if done properly will increase the air circulation past the fins and increase their heat output. Taking these steps amounts, of course, to using the finned pipe to make convector-type concealed radiation, and this is done better by manufacturers of such radiation than it can be done by you on the job. Once you consider using radiators, you may want to consider using modern types of cast-iron radiation.

We suggest, then, that you consider cutting two of the returns to the boiler, and installing in them two radiators of the type which pleases the owner and you. Install the radiators at floor level. Circulation will be good, for the circulator will be drawing the returning water through the radiators as it returns the water to the boiler. If you use this idea, install bypass piping and valves to permit the owner to turn off the basement radiators if he desires.

Don't fail to consider this also. Using one-pipe, forced-flow fittings and following the manufacturer's instructions, you can connect two radiators to two of the return mains very simply and inexpensively, and can provide the feature of simple valves at the radiators for turning them off.

Even considering the heat the room now gets from hot water piping, and considering its low heat loss, we'd prefer a radiator of at least 40 ft. size at each end of the room. After all, you should give it appreciable heat.

* * *

Q. A wood building and a brick building of much higher heat loss are heated by one steam boiler and a low pressure one-pipe steam system without a condensate pump. The boiler is in a basement and has one 4" main and one 2". Can we install motorized valves in each line just over the boiler and control the heat in each building with its own thermostat? What will happen when both valves shut off and heat from the firebox continues to make steam for several minutes?

S. W. P., Herkimer, N. Y.

A. Often on such a job you have to consider this problem. With the motorized steam main valve of one zone closed and five pounds steam pressure on the boiler, the boiler pressure would force boiler water backwards through the return line which serves the closed-off zone.

One way to handle this problem, as you seem to know, is to install a condensate receiver and pump. Pipe the returns of both steam systems to the receiver. With only atmospheric pressure on the receiver, even when the boiler pressure is up to five or ten pounds gauge pressure, boiler water cannot, of course, be forced backwards up the returns of the system.

Check valves in the return lines sometimes work out satisfactorily, particularly in systems which operate well under slight boiler pressure.

Again, motorized valves have been used in the return lines as well as the steam mains. With heat off for one zone, both its steam main and its return line to the boiler are closed by motor-

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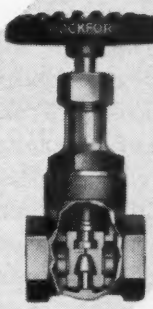

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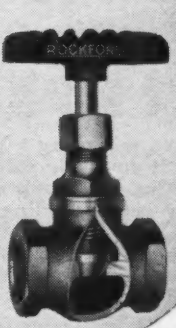

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ized valves. This unusual arrangement sometimes is inexpensive compared to installing a pump and receiver.

In some systems, fortunately the steam mains are high above the waterlines of the boilers and the returns are so arranged that water does not leave the boilers even with the steam mains turned off and a slight pressure, say half a pound gauge pressure, on the boilers. The heating systems work well at one half pound maximum boiler pressure, and special high limit pressure controls, calibrated in ounces steam pressure, can be installed to prevent building up more than a half pound boiler pressure. Under these fortunate conditions, you need install only the steam main motorized valves. The returns need no changes or valves.

Because of all these possibilities and complications, you should get help with your planning from the manufacturer whose zone control equipment you will install. Send this manufacturer a good sketch of the boiler and heating plant arrangement. See p. 144 of the March issue of FUELOIL & OIL HEAT for the answer to your question about boiler pressure building up with both zones turned off.

* * *

Q. Why, or what is the remedy? A gun type domestic oilburner that has operated satisfactorily for two to five years starts to pulsate and puff. Some at the start and some at the shut-down, or both.

N. U. L. O., Glen Lake, Minn.

A. Plainly, something's changed to cause the pulsation. It's undoubtedly wise to install a new nozzle on the trouble job, to eliminate possibilities of the pulsation's being caused by nozzle wear or plugging of one or two atomizing slots. Accumulation of dust could cause the trouble; clean the burner's air inlet ports, air-handling parts, and blower wheel. Soot in the flues of the boiler or furnace sometimes causes the trouble. Clean the flues thoroughly, making them clean as new. Also, the smokepipe and chimney may not be clean as new. Air leaks, not present when the job was new, may have developed in the smokepipe and furnace or boiler. The firebox may have deteriorated, and dirt and debris may have accumulated in the bottom of the firebox. The fueloil being delivered now may be different than the oil delivered years ago when the job gave no trouble.

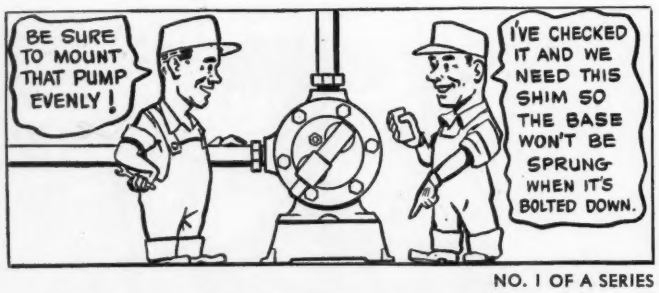
On one job, pulsation that developed mysteriously after the burner was five years old finally was cured by cutting off tree branches that in five years had grown over the chimney, causing downdrafts at times.

Whatever the cause of the trouble in an old burner, your best remedy may lie in fitting the burner with a modern, delay-the-oil solenoid valve, or a coaster-hub blower wheel. Check thoroughly on using such devices to improve the burner.

* * *

Q. I am installing a forced hot water heating system with 1¼" baseboard. There is approx. 280 ft. of radiation in the house. I am putting in a 1" main all around the house.

I would appreciate knowing (1) would it be better to put in ¾" risers to connect my main to the baseboard, or would ½" risers be as efficient? (2) would I have to use two special forced fittings for each section of baseboard,



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. . . . Readers' Problems

or would one return fitting and one copper tee be sufficient?

C. O. C. A., Ludlow, Mass.

A. If this heating system is typical in every respect, not unusual, certainly the ½" risers to the baseboard radiation should be sufficiently effective. Follow the instructions of the manufacturer with respect to using one or two special forced-flow main fittings per radiator. Obtain these instructions from the manufacturer of the circulator and specialties you will use. This is important, as on this point the instructions of different manufacturers are different. The entire installation should conform in every detail with the instructions of the manufacturers of the equipment which you use on the job.

Q. *What would be the setting of the feeder of a closed, radiant hot water heating system in a 4-story building?*

F. L., Bloomington, Ill.

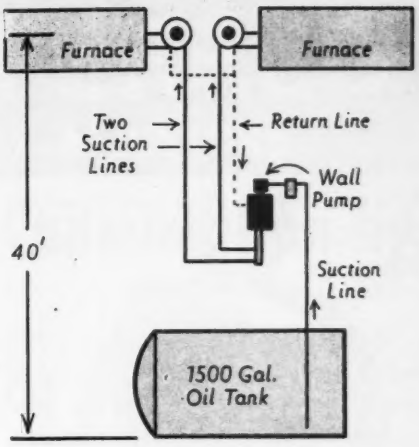
A. Set the feeder for high enough pressure in the boiler, with the system cold of course, to permit easy, speedy air-ridding of the highest coils and pipes in the heating system. The pressure relief valve must be set still higher, so that using an expansion tank of the proper size water does not spill from the relief valve at maximum design boiler temperature. Naturally the boiler must be suitable for the maximum pressure developed in it as a result of all this.

* * *

Q. *Two ceiling-hung furnaces, located end-to-end with the burners close together, must get oil from a 1,500-gallon oil tank. Bottom of tank is 40 ft. below the burners. Please give a sketch of the oil piping.*

B. J. W., La Crosse, Wis.

A. As 20 ft. is just about the maximum lift for an oil pump, according to many engineers, you may be able to use one wall pump located 20 ft. above the bottom of the oil tank, as the drawing shows. The burners, preferably fitted with two-stage fuel units, will lift oil the remaining 20 ft. Use one suction line for each burner, but one return line to the wall pump for both burners, as shown.



Before deciding to use this arrangement, however, ask the manufacturers of the fuel units and wall pumps you use if they find the 20 ft. lift excessive. If they do, you can (a) use two wall pumps, one below the other, so as to have three suction lifts with each only 13 ft. high; or (b) use a pump located near the 1,500-gallon tank to push oil up to a small oil storage tank located near the burners.

Using the (b) arrangement may be relatively costly, but has the advantage of eliminating high suction lifts and employing pressure, instead of vac-

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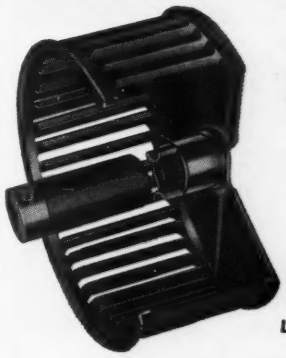

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uum, to raise the oil to the burners. The pump unit that raises the oil could be started and stopped by a float switch mounted on the small oil storage tank, or could be arranged to run when either oilburner is running, with overflow oil from the small tank returning to the 1,500-gallon tank whenever this pump runs.

* * *

Q. I have a chance to bid on a few heating jobs involving the removal of coal-designed furnaces fired by conversion burners, replacing them with oil-designed furnaces.

Is it customary to remove the old registers, used with the gravity furnaces, and replace then with new registers for the forced-air furnaces? Differences in register size involves patching the walls, thus increases costs.

A. R. B., Detroit

A. Give the owner a base price quotation using the old registers and using sheetmetal blockers in the ducts to reduce the duct areas by about 40%. Located close to the registers and bent one way or the other to balance the system roughly (use lock-type duct dampers later for fine balancing) the blockers will increase the static pressure in the supply ducts and provide proper air-flow from supply registers far from and close to the furnace.

Give an optional, higher price quotation for a job that includes all new supply registers designed for forced circulation.

* * *

Q. Please advise if there is a material on the market to put in the combustion chamber of a furnace (oil or otherwise) to absorb the moisture prevalent in some basements, which causes units to rust during summer shutdown.

G. W. J., Stanbridge East, Quebec

A. Unslaked lime, an inexpensive and commonly available material, is used regularly for this. Two to five pounds in a tray suffices for domestic units. Keep the furnace doors closed. Examine the lime every month or two, and replace it if it becomes damp. Obtain the unslaked lime or quick lime at a building supply house. See p. 61 of the April 1951 issue of FUELOIL & OIL HEAT for mention of this method of keeping a boiler dry in summer.

Many equipment dealers tell furnace owners to turn on their oilburners once every two weeks or once a month in summer to keep dry the furnaces, burners and controls.

* * *

Q. In sizing risers for forced-air jobs I figure 250 Btu for each square inch of riser area. Is this figure sufficiently accurate?

F. V. D., Butte, Nebr.

A. Using this factor, which in fact is close to the 200 factor often used to size the leaders for third-floor rooms heated by gravity-circulation furnaces, causes you to install ducts needlessly oversize. If you have the April, 1949, issue of FO&OH, read the article, "How to Figure Cfm," starting on p. 61. Using the more-exact method of figuring taught in this article, and figuring 800 fpm for risers, you would use 45 sq. in. of riser for a room having a heat loss of 22,100 Btu per hour, for example, whereas use of your 250 factor would lead to 88 sq. in. of riser.

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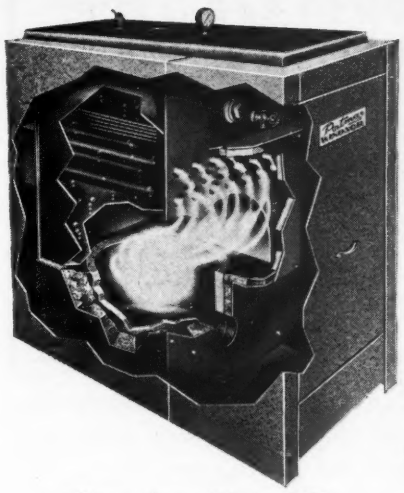

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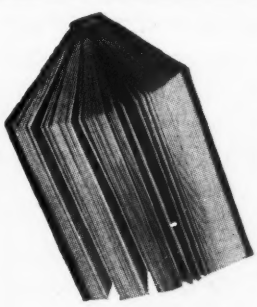

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Heavy oil Pumping

(*Begins on page* 88)

tion. This fuel differs considerably from light fueloils—it is much more viscous at a given temperature, and contains more sulphur, water and sediment. In order to keep out of operating troubles the customary good practice of selecting only equipment that has been proved in the field, or is backed by a reliable manufacturer, is to be commended.

❖

Cleaver-Brooks names Ohio Representative

KEATTS THERMAL EQUIPMENT CO., Columbus, Ohio, has been appointed manufacturers' representative for the sale of boiler equipment made by Cleaver-Brooks Co., Milwaukee 12, Wis. The company, managed by R. M. Keatts, will distribute the line in a territory comprising 36 Ohio counties.

The equipment includes mobile steam boilers, gasfired, oilfired and combination gas and oilfired boilers.

Eckhart defers bowling alley Opening

BUILDING DIFFICULTIES have delayed the opening of Echo Bowling Center, Mountain Side, N. J. until Sept. 29. Arnold Eckhart, owner of Eckhart Mfg. Co., Union, N. J., is a part owner of the new establishment.

❖

Industrial Manpower

(*Begins on page* 84)

to carry a bag of tricks with him, and the bigger it was, the better he was. The day of these men ended long ago. Today everything an oilburner is and does is known or can be measured. There is no reason why schools can't supply all the basic knowledge about them that now has to be acquired by word of mouth and by experience over long periods of time.

Therefore, if the process of expanding thelabor force is to be accelerated, schools are the answer. Who is to operate such schools? Where are they to be located? What are they to teach? How are the drifters to be weeded out? Will the industry send students to them and absorb their output?

Almost any of the schools now giving courses in domestic oilburner work, heating, refrigeration, etc., would be glad to add a course in industrial burner work, provided they were given assistance in securing the necessary equipment and the assurance of a student body large enough to justify the expense of getting the course under way. The industry, of course, would have to supply both of these.

Schools able to inaugurate the desired courses already exist in or near all the areas where commercial-industrial burners sell in sizable numbers. Selecting strategically placed ones from coast-to-coast should present no serious problems.

As to what such schools should teach, industry representatives could work out a satisfactory curriculum with those experienced in vocational training. Two years of training in the things an oilburner man needs to know —mathematics, physics, thermodynamics, drafting, etc.—on first- and

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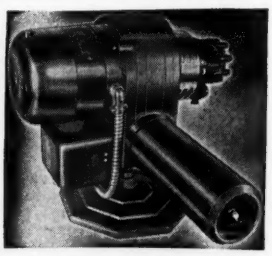

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. . Industrial Manpower

second-year college level but stripped of all non-practical clatter, plus as much practical work with tools as possible, might be satisfactory. It would be desirable, wherever possible, to extend the classroom into large boiler plants, to enable the trainees to get a better feeling for the work they are about to undertake, and to help to overcome the awe that is inspired in any men by the very size of much commercial-industrial equipment.

An educational prerequisite to such a course should probably be four years of high school or its equivalent. An entrance examination should perhaps be required, and possibly a screening to weed out the drifters.

Whether the industry would cooperate by sending men to such schools and by absorbing their output would depend entirely on how well the schools did their training job. This, in turn, would depend to a considerable degree on how closely the industry kept in touch with the schools and on how well it cooperated in the laying out of a practical training course. The success of the schools would depend on how badly the industry needs men and on how much it will do to get them. If it wants men and will help the schools to train them properly, it can get them.

No schools anywhere in the country now offer training in commercial-industrial burner work, so far as is known. However, one of the privately owned vocational schools in the New York area will do so this fall. Let us hope that the industry will indicate the

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Keeping flues dry—clean—safe
Saves up to MUCH fuel, all kinds

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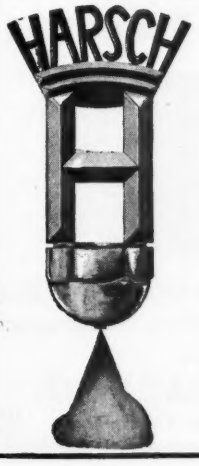

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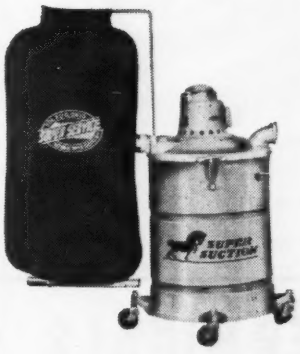

The new Super Red Streak Model SH is equipped to clean all types of heating plants, hot or cold. The Super Oil Soot Filter bag is constructed to avoid clogging, eliminating back pressure that is destructive to ordinary bags. Super suction tube scrapers enable you to clean fire tube boilers.

The unit can be used to clean up flooded basements and is quickly converted to a blower. Ask your supply dealer or write for our five-day FREE trial offer. Prove to yourself how these and many other Red Streak advantages can make money for you.

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FUEL OIL
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. . Industrial Manpower

extent of its desire for more trained men by the extent of its offers of assistance to this school. The name of the school may be obtained from either FUELOIL & OIL HEAT or from Oil-Heat Institute.

One alternative to setting up such industry-sponsored and industry-supported schools is to recruit manpower from full-time engineering colleges. This is not a good alternative for two reasons: first, college men are not likely to look with favor on the usual run of oilburner work, with the exception, of course, of the few jobs manufacturers have to offer in their laboratories and engineering departments, and second. the output of college-trained engineers is dropping every year, from 50,000 in 1950 to a predicted 17,000 in 1955, says the U. S. Office of Education.

As has been said, oilburner work is attractive to few men. Can it offer enough inducements of another sort to overcome this handicap and persuade the dwindling supply of college men to adopt it as their life work? Engineers want adequate salaries, interesting work, the satisfaction that comes from accomplishment and progress. Only if the oilburner industry can offer these to a greater extent than the other industries that will be clamoring for college men can it expect to get them.

Those who do like oilburner work find it extremely interesting and appear to derive a satisfactory feeling of accomplishment and progress from it. The question of whether the industry is able to pay adequate salaries could best be answered by comparing its position profitwise with other industries, but since the figures necessary for this comparison are not available perhaps a satisfactory substitute may be found in a comparison of its selling prices with other price indexes. The chart that appears on the "Oilheating Trends" page of this magazine shows that as of March, this year, the BLS "cost of living" index was up 85 per cent from the 1935-1939 norm, the "residential construction cost" index up 135 per cent from the 1939 norm, the "individual incomes" index up 160 per cent from the 1939 norm. The "oilburner retail price" index was up only 36 per cent from the January, 1940, norm. While the price of everything else has been rising anywhere from 85 to 160 per cent, oilburner prices have risen only 36 per cent. This does not speak too well for the ability of the industry to pay salaries high enough to permit it to bid against other industries for college engineers.

Another alternative to industry-sponsored and industry-supported schools are the "schools" conducted by the manufacturers in their own plants. Most manufacturers of domestic burners conduct such schools and have had a fair measure of success with them. Some manufacturers of commercial-industrial burners are beginning to conduct them, in desperation, although it is questionable that such schools have any real value in increasing the knowledge of those who attend them. Certainly they are of value in increasing good will and in convincing those who attend them of the goodness of the manufacturer's products, but that's about as far as they go. Most real schools consider the first week of a

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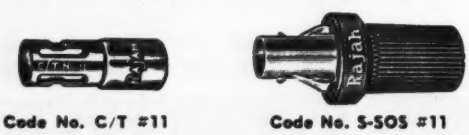

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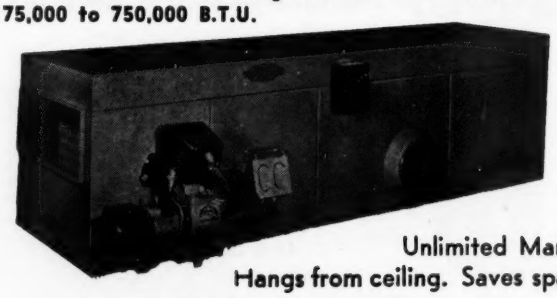

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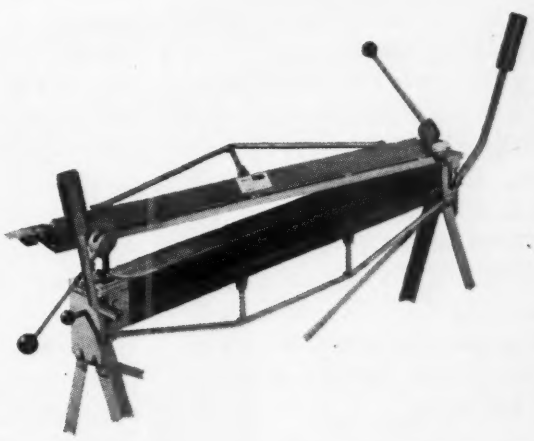

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SOOT-GO SOOT DESTROYER

STILL THE BEST for cleaning oil and gas-fired heating plants.

EFFICIENT AND ECONOMICAL TO USE

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SLUDGE-GO for Cleaning Fuel Oil Tanks and Will Emulsify Water.

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A very intelligent and resourceful heating oil distributor has been turning down new business because he couldn't see his way clear to finance additional sales. He just assumed that borrowing on his receivables was too expensive.

While negotiating for a partner, he got interested in the Lexington Plan and found that he didn't need a partner and that our charges were trivial compared to the additional profits resulting from increased business.

Are you thoroughly familiar with the Lexington Plan? If not, we suggest that we have our representative go over it with you in detail.

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. . . . Industrial Manpower

term to be pretty much of a shaking-down period during which not much can be expected of the students. How then can a school course of only a week or two have great value?

The same thing applies to the three-day short courses that are popular in a number of other fields. Except for the opportunity they give workers in these fields to listen to experts and to have their questions answered, they can be of little value. To men without any experience they are probably of no value, since almost all that goes on in them is over the heads of such men.

Definitely the answer to the problem of securing additional commercial-industrial manpower lies in well-organized, full-time school courses devoted specifically to training men in this kind of work. The job of getting them established will not be an easy one, nor one to be undertaken lightly, but if it is not done the manpower these schools could turn out will be badly missed in the years immediately ahead. The job warrants the serious thought of all concerned.

Designing Industrial

(*Begins on page* 80)

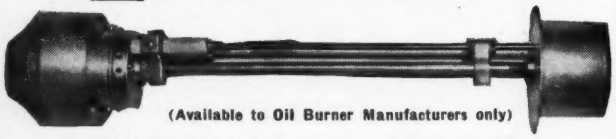
height from burner center line to concrete surface under the boiler.

For the average job, if the combustion volume required is divided by the plan area of the firebox, the resulting height to provide the calculated volume will usually be sufficient to afford hanging space for the burner. But the dealer must bear in mind the additional height needed for the firebox floor and secondary air.

When a new boiler room is being planned, it will usually be possible to provide a high masonry base to support the boiler as required for the correct combustion volume and floor clearance. The points peculiar to each boiler type will be brought out in the discussion of each type. When an existing hand fired setting is to be converted to oil firing, the general practice is to excavate a pit under the boiler. The important point to watch for is that the existing foundation is not undermined. Should the pitting descend below the boiler foundation, the foundation must be underpinned, usually done by sectionally digging under the foundation beneath the boiler walls, and erecting red brick walls to meet the foundation. The underpinning is done sectionally, that is, a few feet of length at a time, so as not to disturb the entire support under the foundation at any one time, but gradually to replace it with red brick.

Surface exposed either directly to the flame or to transmitted heat that will raise the temperature above the range comfortable to the touch are to be built of refractory material. A later article of this series will discuss refractories. It can be said here that cheap refractories are seldom an economy. The labor for laying or setting up inferior materials is equal to that required when using the best materials, and labor is always a significant part of the total cost. Good materials outlast inferior refractory several times; the return amply justifies the small additional investment to use the best.

Dealers! Jobbers! Insist on Shell Designed Combustion Heads on all the burners you sell!



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The Shell Designed Head's proven fuel-saving feature gives you a powerful selling advantage over competition with ordinary equipment. Sell the best!

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VAPORIZING BURNER SERVICE

A compilation of articles from FUEL-OIL & OIL HEAT by a veteran service manager and an oilheating engineer. Gives important wrinkles and angles of servicing pot-type units. 32 pages, 8½ by 11 inches. Many diagrams.

(*Please send remittance with order.*) **$1.**

HEATING PUBLISHERS, INC.

232 Madison Ave. New York 16, N. Y.

Oilheating Trends

(*Begins on page 12*)

with 46% a year ago and indicates that their stocks are nearly six million barrels higher than a year ago. The comparisons by sections are New England 86% filled on August 1 this year and 51% filled a year ago; Mid-Atlantic states 56% and 37%; Midwest 43% and 53%. Thus the Midwest is showing an actual decline this year largely because wholesale prices are uncertain and did take a drop a month ago.

Stocks of No. 2 heating oils at refineries, terminals and in transit East of the Rockies on August 4 were 68,803,000 barrels. This compares with 47,860,000 barrels on the same date last year and shows a rise of 44%. Considering that the demand next winter will only be around 10% above last season, plus weather adjustment the stock trend appears very comfortable.

DEALER COMMENTS: Typical comments on questions of the month are these . . . "Our largest headache is electrical materials" . . . "Business has been very slow with more sales effort than last year" . . . "Customers aren't flocking in—it takes good old selling and our business is 25% down from 1950" . . . "If they would just charge the gas companies 40¢ per M for gas at the well, it would be on the same basis as $2.50 crude oil" . . . "Manpower shortage has let up a little" . . . "We are short on galvanized sheets for ducts" . . . "Overall picture on sales as good as last year but very much less profit" . . . "Service and installation men are the bottleneck in our plants" . . . "Speaking of price controls (which you weren't), trucking companies in Albany area raised their rates on July 23 nearly 10%, an increase which we have to absorb with our selling prices frozen—how come?" . . . "Tanks are very tight in our city; black market is returning" . . . "Our policy: keep your nose to the grindstone and conditions will take care of themselves."

❖

Millard H. Poole is manager of the newly-established Ohio Valley marketing region, Sun Oil Co., Philadelphia 3, Pa. and *Fred H. Kaye*, formerly manager of Sun's Toledo district, has become Ohio Valley office manager. Other personnel changes enabled *James E. Banta* to succeed Mr. Poole as assistant manager, Central marketing region at Pittsburgh; *W. W. Rems* to succeed Mr. Banta as Middle Atlantic regional merchandising manager at Philadelphia; *E. T. Lillard* to succeed Mr. Rems as manager, Philadelphia district and *William P. Kuipers* to succeed Mr. Lillard as Malvern, Pa., district manager.

Erwin S. Mason, Jr., has been named sales engineer for the Dravo Corp., Machinery Div., Pittsburgh, Pa., in the Cincinnati, Ohio, territory. Formerly vice-president of Mason and Lowman Co., Mr. Mason will handle sales of Dravo heaters and products of the DeLaval Steam Turbine Co., C. H. Wheeler Div., Fuller Co. and Walker Process Equipment, Inc.

B. F. GOODRICH CO., Akron, Ohio, has issued catalog data sheets contain-

COMPARE	Aqua Heater	Tankless Heater A	Tankless Heater B	Tankless Heater C	Tankless Heater D	Tankless Heater E
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Manufacturer's Guarantee	15 years	1 year	1 year	1 year	?	?
Insulation Available	Yes	No	No	No	Yes	No
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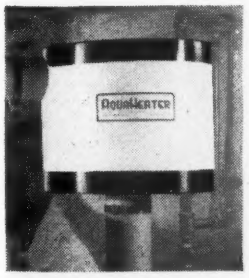
Rocklining	Yes	No	No	No	No	No

*Based on steam 212°F—all other ratings based on 180°F boiler water.



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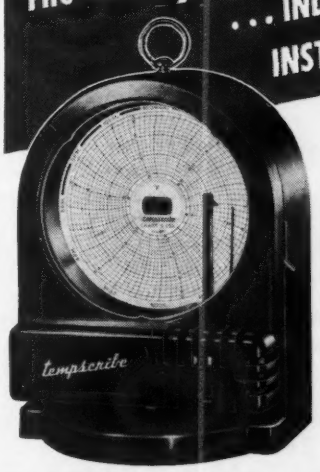

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- DEMONSTRATES THE HEATING COMFORTS THAT WILL RESULT FROM THE RECOMMENDED IMPROVEMENTS!
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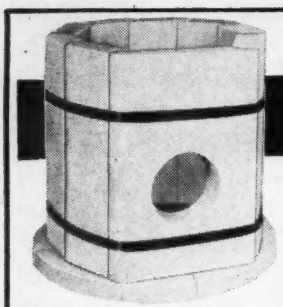

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Because of the high quality of materials used in American Chambers they provide faster heat-ups, quieter burner operation and savings in fuel.

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TIFFIN, OHIO

ing all pertinent information concerning its gasoline and fueloil handling hose. The folder is illustrated with sectional views and includes descriptions of several hose accessory fittings.

SMITH TWIN TUBULAR BOILER CO., INC., Philadelphia, Pa., has issued a catalog which contains a schematic, colored, cut away diagram of its boiler, and all basic specifications and ratings. Photographs also are included displaying the relative ease with which this sectional boiler is installed.

MASON MACHINE CO., INC., YORK, PA., has produced a folder illustrating and explaining the variable flame principle embodied in its McIlvaine vaporizing burners. An illustration and description of the McIlvaine thermostat used in conjunction with the company's burner also is included.

ALLIED TANK TRUCK EQPT. CO., PHILADELPHIA 30, PA., has printed a leaflet showing large photographs of three models of fully-equipped tank trucks as they appear in service, together with a description of their fuel handling construction and lists of the equipment which is standard with each model.

CRISE CONTROLS DIV., ACRO MFG. CO., COLUMBUS 16, OHIO, has made up a folder describing the company's products for all types of temperature control. Illustrated with photographs, the folder contains a description of a line of warm air limit and fan controls, as well as three models of hot water temperature controls of the strap-on type and immersion type.

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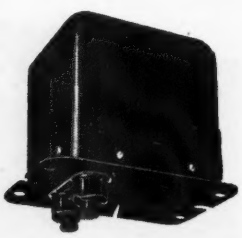
Unfailing Ignition for Oil Burners

Ignition is at its best when an oil burner is equipped with a Dongan Transformer — the transformer with many unusual construction features. Insulated under high vacuum. Protected against injury from electrical surges. Laminations heat-treated to remove internal stresses.



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With the AUTOMATIC HUMIDIFIER water drips into pan only after pan is hot. Each drop sizzles into steam as it strikes heated pan surface. Puts the most moisture into air stream when it is MOST NEEDED.

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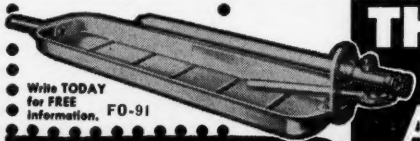

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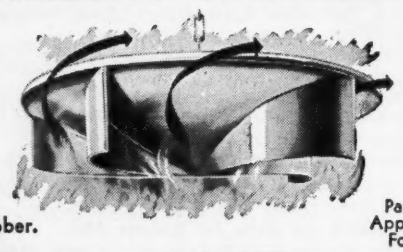

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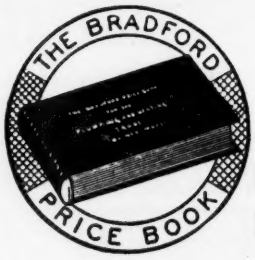

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SAMPLE SHEETS UPON REQUEST

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